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The Magazine of Prophetic Fiction

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ON THE COVER THIS MONTH

taken from C. A. Smith's, "Visitors From Mlok" we see the man from earth being projected back to earth by the strange machine of the Mlok creatures. He is going back just in time to avoid the destruction of that world by creatures from another system.

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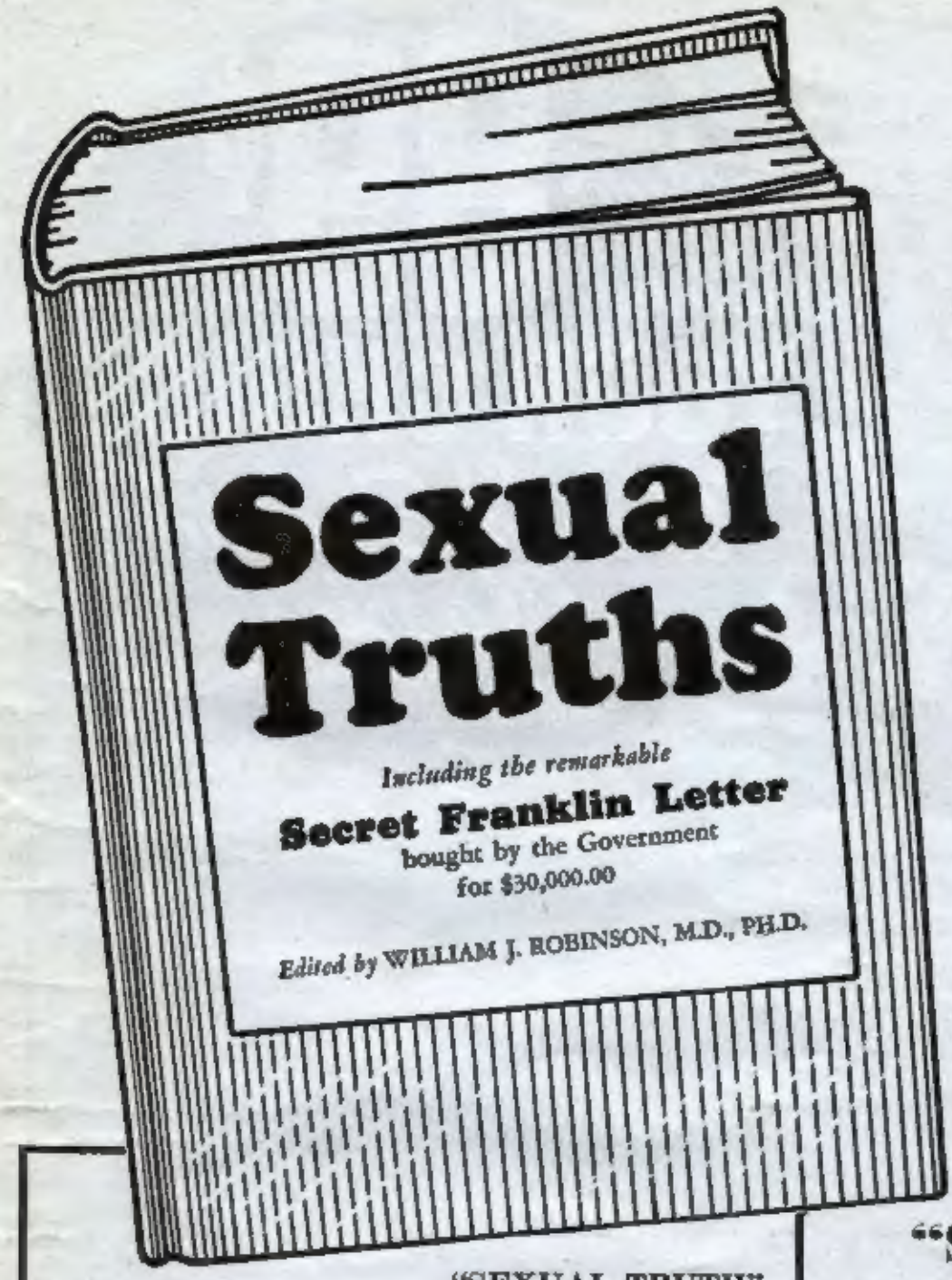

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EDITORIAL PAGE

MAY, 1933

Volume 4 Number 12

WONDER Stories

HUGO GERNSBACK
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WONDERS OF THOUGHT

An Editorial by Hugo Gernsback

● We are accustomed to the marvels of science fiction, yet, there are really greater marvels nearer to us which may take centuries before we even start to comprehend them.

I refer to the creation and the processes of thought with which we are all familiar. These processes go on within our brains, day in and day out, but the marvelous part about it is that we are wholly unconscious of many of them and, as a matter of fact, we have not the slightest notion how thought originates.

The human brain has been studied for many years and of late, at the *Kaiser Wilhelm Institute* of Berlin, where an entire section is given over to *"Gehirnerforschung"* (Brain research). Here the German scientists are dealing only with the mechanical features of the brain. They can deal with the mind only by deduction because a dead brain no longer functions. It is as if you were to take an electric motor and then, with a saw, cut apart the electric windings to find out what electricity is.

What constitutes conscious and unconscious thought, and how it all comes about, are tremendous problems of which little or nothing is known today. An inventor is apt to tell you that an idea suddenly "popped" into his head and gave him the inspiration for his invention. Just how this came about he does not know. It will be found, with most people, that ideas "pop" out in this manner without conscious effort. As a matter of fact, research men and scientists know that when thinking hard on a certain problem they often accomplish nothing; but while smoking a cigar or walking in the street, they find the solution suddenly appears miraculously from "nowhere."

Of course, scientists will tell you that all the while your subconscious mind has been busy working with the problem without your knowing anything about it. When a solution was had, it was then forcibly brought to your conscious mind. Many people know from experience that they could not solve certain problems, no matter how hard they worked, but suddenly the solution appeared in a dream and was remembered subsequently upon awakening.

While these are wonderful processes, they are still simple when compared with thought itself in its simplest aspects. The process of thinking is so complicated and so marvelous that it is most difficult to comprehend. The reason here, of course, is that we deal with something that is wholly evanescent and fleeting; far more so than the weakest electric current that the scientist can measure with his instruments. The chances are, however, that as science is today beginning to believe, all thought processes are really electro-biological functions. It seems pretty well proved that all nerve impulses, are accompanied by the propagation of weak electric currents. Every time you think, whether consciously or unconsciously, an electrical current is generated and, in turn, conveys impulses to other portions of the brain. If the right combination is made, you become conscious of whatever thought there is.

It will do you no good, for instance, to look at a complex mechanical drawing if you happen to be non-mechanically inclined. The brain center which takes care of the mechanical "ability" is not organized for the reception of this information, and therefore no impression is made. The mechanical engineer, however, has this particular faculty well trained, and upon his looking at the drawing, immediate thought pictures are called up. We now say that the engineer "understands" the drawing.

The same with languages. It will do the average man no good to listen to a Chinese speech, or to look at a Chinese printed page. His particular "language center" will not respond, simply because it has had no experience with Chinese before. The linguist, however, who has studied Chinese, has no such trouble; the thought pictures created by either the spoken or printed words in his mind immediately find the right department, being relayed through the correct "switchboard" located in his brain. Of course, all this is still a very mechanistic explanation of thought, for it cannot answer how thought comes about originally.

Many authorities take the view that thought originally is nothing but instinct or reflex actions. These actions arise in the "memory centers" where they are automatically caused by the stimulus of perception. From instinct, there is a slow evolution into thought. We have, however, no proof today of an actual link or transition between the two.

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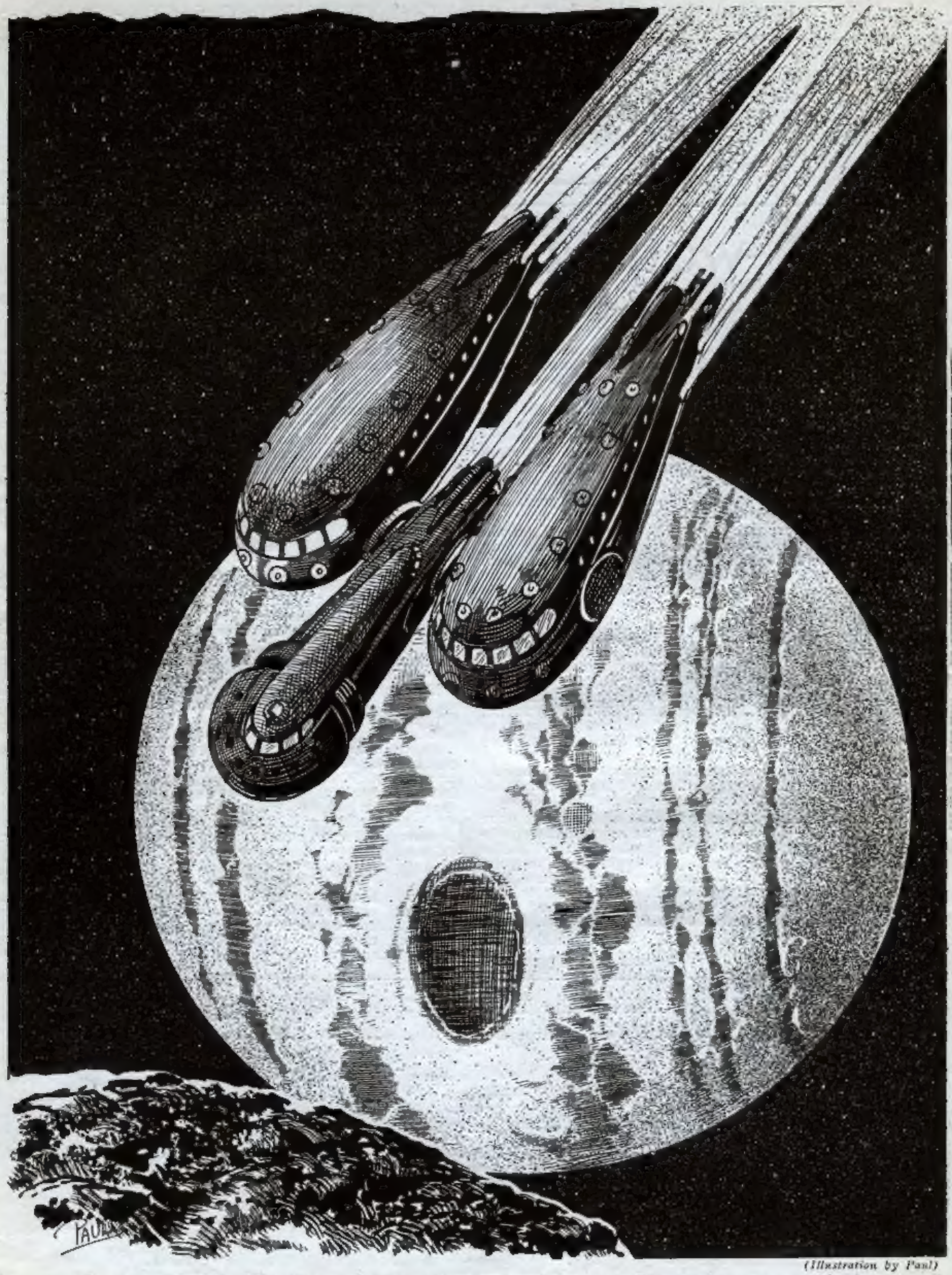


(Illustration by Paul)

There was an earth shaking jar as the magnetic clamps of our two ships made contact with the renegade ship. Not a sound came from the bulldog caught between our sides.

GULLIVER, 3000 A. D.

By LESLIE F. STONE

● Much speculation has been carried on by scientists on the probable nature of life on worlds whose physical conditions are greatly different from those on earth.

As yet, however, scientists are not agreed on many particulars. For example, some scientists state that life on Jupiter would have to be on a much larger and more robust scale, because of the great storms that must sweep that gigantic planet. Other men believe that the great gravitational force on Jupiter would kill off any creatures not supple enough to be fitted for it.

Miss Stone has expressed in this entertaining and realistic story her own views. Whatever you think of them, you must agree that her Jovians are people that might exist, not incredible monstrosities concocted hastily out of an author's brain.

● *"Calling Patrol-ship 354, calling Patrol-ship 354!"*

I awoke with a start from a day-dream, a dream in which I had graduated from the ranks of the two-man Jovian Patrol to the captaincy of a ten-man Patrol, scouting among the moons of Jupiter, and Saturn, downing pirates; driving home to refractory miners and mill hands the fact that the police of the Outer-Planets' Union are not to be trifled with. The metallic voice of the transmitter, however, quickly brought me back to the reality of the moment with its harsh: *"Calling Patrol-ship 354."*

Flipping the lever that closed the circuit I answered. "Patrol-ship 354, Dennis Martin, reporting."

Came the command: "Proceed immediately to rescue of Willa March aboard abductor's ten-man flyer, last seen falling into Jupiter's atmosphere, one minute southeast by east, Great Red Spot. Patrols 355 and 356 on way to give assistance. Take abductors alive or dead, but do nothing to injure Miss March. That's all."

"That's all, is it. That's all!" broke in Jimmy Small, my co-pilot. Up to the time of the broadcast he had been lying upon his bunk, apparently sleeping. "Just a mere jaunt to Jupiter; capture kidnappers dead or alive without injury to Miss March. A neat order all tied and sealed in pink ribbon. That's all. Yah!"

I was already setting our new course as I grinned at Jim whose surname belied his great size. Six feet six he stood, a big hulk of a man. Dark-haired and swarthy, he was always surly, always contemptuous, always complaining; not the best sort of a companion for a thirty-day shift in the silence of space, cooped up in a two-by-four ship where one lived, ate, slept and did duty in the not too big cabin, without so much as a single partition to give one privacy now and then.

Small was none too popular in the corps. There had been any number of complaints laid against him. A shirker, a trouble-maker, it was only through an uncle, who was some high mogul back on the mother planet, that Small hadn't been fired from the Patrol long ago. As a last resort they had wished him on me, because, for some unearthed reason, I had the title of the easiest-going hombre in the Patrol! Well, what if I am? A man can grin easier than he can frown; the face is built for smiling. (Try it yourself and see!)

Now I was laughing at Small. "You've been complaining long 'nough 'bout the dreariness of this beat. Your prayers've been answered, Jim, old boy."

"Yah! Answered, and how! For months we've done nothing but circle 'round and warn smarty-alec navigators from getting too close to old-man Jupiter; then they drop something like this in our laps. Proceed to the rescue of Miss March. Has anyone ever landed on Jupiter and lived to tell the tale? And who in Lord Harry is Miss March, anyway?"

"Well, I admit this ain't the kind of assignment I'd like to get every day, but it's orders. As for Miss March, she's the daughter of the new Administrator of Io. Reports been coming in all hours about her kidnapping. You'd've heard if you'd keep 'wake long enough to know you're alive. It's a wonder I hear any reports coming in with you snoring my ear off . . . "

"You don't say! Well, listen, fella, you do plenty of snorting when you're off watch. Damn, the man who designed this baby-coach bedroom, parlor and workshop in one. Don't know why I stick in this blankety-blank outfit anyway. Who's the guys that did the dirty work?"

"The ones that built this ship?"

"Naw, the pirates that picked off this March doll?"

"That's what the whole Fed.'d* like to know. They took her outta bed under the noses of the palace guards, and carted her off in a ten-man. It's believed there's only two of them, maybe three . . . "

"But why Jupiter of all places? Maybe it's only a stall, a dummy. I've no stomach for going down there, I can tell you. They say it's molten under that steam, Denny."

● "I guess they navigated too close, and got dragged down. But you know that's all wet, twentieth-century stuff about Jupiter's being molten. Corlis Breeley contends the planet's as solid as the inner planets or Saturn; and what you call steam is clouds, like those of Venus, and . . . "

"Yah! And what 'bout those three expeditions what went in to prove it? They went in just about where this March gal and her buddies dived. Ain't one of 'em been heard from since, and my best pal, Jerry Treat, was one

*Note: The Inner and Outer Planet's Unions were loosely held together by the Council of the Solar Worlds' Federation. "Fed" is short for Federation.

of 'em, too!" As he spoke Small had come forward to stare through the forward porthole into that swirl of thick vaporish clouds that billowed sluggishly beneath us. His too close-together eyes bulged slightly, then he shot a narrow glance at me. "Denny! You're not going in there, are you?" he demanded suddenly, and I saw that the blood was drained from his face.

"Oh, I've been in worse spots, Jim. There was that time . . . "

"Shut up. I ain't going to listen to any more of your fish yarns." He had thrown up his head and now whirled to face me. His lips were white, trembling. "Well, I'm not going down there, Denny, y' understand? I'm not going. You can't take me in there!"

I knew Small had been jumpy of late. I've seen men go off the handle like that before. A word usually straightened them out. I smirked, and in my most jovial manner: "What you going to do, old man? Get out and walk home?"

He came close, leaning over the desk, his face on the level with mine. I saw beads of perspiration on his brow. "Now listen here, Denny, you're not taking me in there I tell you. Call it mutiny, if you like, but there's no reason why you and me should commit suicide for a woman we've never seen in our lives. I refuse, Denny, I refuse —FLAT!"

As he spoke he pounded the top of the desk, but now he caught my right hand and dragged it from the manuals. Half-rising in my seat I drove my left to his chin so that he dropped like a stone to the metal floor of our cubicle. To tell the truth, I was squeamish myself about entering the Jovian atmosphere, but a girl in distress is a girl in distress, just as orders are orders.

It was with hard work and careful application to my studies that I had gained my present position of captain of a two-man patrol-ship. True, the duties of an ordinary patrolman are not a too-responsible job. Usually, it's simply a matter of following a prescribed beat a few thousand miles out in space from Jupiter waiting orders to scout after a space-yacht that has dared to come too close to Jupiter, or because of the incompetency of its crew, is on the point of falling toward that great planet whose powerful gravitation is felt far out in space.

Not all ships are highly powered enough to withstand that "pull"; only the two-man bulldogs of the Jupiter Patrol are built to cruise near the surface, carrying with them enough power to drag another helpless ship back to safety. Four ten-man ships of the Union Patrol were the exception to the rule, but rarely did they ever encroach on our territory.

Jupiter was the last stronghold to withstand the onslaught of civilization. In the first place, the settling of the moons of Jupiter and Saturn was of recent date. There was much to be accomplished on these worlds, and it would be a long while yet before man was ready to push on to the monster planet where the surface gravity was 2.52 times that of Earth.

It would be next to impossible for the human race to live there without artificial agencies. Science must first lead the way for human habitation, and as yet science had not put its mark of approval on Jupiter. The human race was more concerned with the four central moons of Jupiter, but although the last four moons are very small, valuable minerals and ores have been discovered upon them, so that there were small settlements on their surface to reap the harvests.

Io, the second satellite, headquarters of the Outer Planets' Union was also headquarters of the Jovian patrol. Many of Earth's wealthy have bought homes upon these worlds and traffic between the first five satellites is quite extensive. That is the reason for the two-man patrols, a safe-guard against private yachts from being caught and dragged down by Jupiter as they pass the larger world on their journeys to and from the various moons.

The belief that Jupiter is still in a molten state is fostered by the presence of the heavy cloud-banks hiding the surface from view, slightly luminous clouds that seem to glow with fires from below. To add to this theory are the various "spots" that appear suddenly in this envelope, remaining for a time and then disappearing again in somewhat the same manner as the solar sun-spots. Of these spots the Great Red Spot is the most noteworthy.

Making its first appearance in 1989 it has persisted for several centuries so that now in the early twenty-third century it appears permanent, remaining the most prominent feature of the great planet. It lies in the vicinity of Jupiter's equator, and is roughly 45,000 miles long and 8000 miles wide. Its center is a deep red, and unlike other spots of the past it does not rotate with the planet, but remains in one place, always facing the sun. It was close to this spot that the kidnapper's ship was seen to enter the atmosphere.

● Corlis Breeley, renowned astronomer of Europa, put forth the theory that Jupiter, after all, is actually a solid; and to prove his theories several expeditions within the past eight months had dived into Jupiter's thick envelope, only to become lost. Not a single man from any of the three expeditions had, to date, returned to tell his tale.

One could scarcely denounce Jim Small for not wanting to go down there, and as I have said I was doubtful about the outcome of our adventure. Yet, the months that I had spent in the close proxmity of those whirling mists had engendered in me the desire to enter, to see for myself what lay below. Perhaps my desire arose from the same feeling some men are said to feel when they peer over great heights, the desire to jump! Nothing could have stopped me from taking that initial plunge.

With hands on the controls I waited for Small to rise from the floor. Close to my right hand lay my gun, filled with mean little explosive bullets whose peppery fire could make mince-meat of a man even though the bullets or "pills," as they are called in the vernacular, are of minute size. I had no intention of doing damage to Small, but I had it beside me *just in case.* Frightened men can lose complete control of their reasoning faculties.

Small came up whining. "Come on, Denny, be a sport. Cut this job and call it quits. Why, man alive, it's suicide for us both. Come on. We'll scoot for Saturn. I know a guy out that way that'd be glad to get two huskies like us with a bull-dog. He'd pay us double what those small timers on Io pay, and plenty beside for the ship. Don't be a fool. It's death, rotten death in there . . . "

At his words I saw red; I forgot to grin. No man could propose desertion to me. "You dirty rat," I cried. "I always knew you were yellow. I know the guy you mention, and one of these days, after I do this job, I'm

going to take a ten-man and clean out that den of thieves!"

"Yah! Well, listen, mug. We're not going to Jupiter. See!" And he brought his gun to the level of my eyes. "Take those hands of yours off the controls," he ordered.

He was standing slightly behind my chair, his eyes on me.

"LOOKOUT!" I yelled pointing a finger toward the forward port. Small did what I expected of him, jerking his head in fear toward the window, while his gun arm slid forward. As I spoke I had given my chair a backward shove, was upon my feet, and before Small realized what I was about I had flung him to the floor again. Under the menace of my gun he got to his feet and I ordered him to the forward chair that stood in front of the control desk. He took off his belt at my instruction, and I fastened his arms securely to the chair back. Then I returned to the controls.

When orders came to follow the abductors of Willa March we were abreast of Jupiter's north pole. It was approximately 60,000 miles to the Great Red Spot, and as soon as we passed over Jupiter's equatorial bulge I could see the giant maelstrom long before we arrived. The sight of that twisting, turning whirlpool was awe-inspiring. Having observed the Spot many times I knew it was a storm center for winds of more than hurricane and cyclonic force, and I doubted any ship could live in its proximity.

In his chair Small was strangely silent, not saying a word, and I could see that the side of his face, which was in my line of vision, was contorted, his eyes bulged half out of their sockets as he stared in downright fright at the Spot. The thick, vaporous atmosphere beyond the Spot gave no clue of what lay below, but outside the rim of the storm area the clouds were fairly quiet; only, now and then, were they rumpled as a vagrant wind swept through them. And it was at this point that the kidnappers had been seen by the telescopes of Io to enter the clouds.

I said no word to Small as I turned the ship's blunt nose downward, but as we slid into that luminous mist I heard moans issuing from his mouth. No doubt, he considered himself dead already, expecting to see great flames come up through the mists to lick the shell of our ship. A stiff wind caught the nose of the bulldog, but I steadied it as I kept my eye on the instrument, bank washed now by the pale copperish glow that is part and parcel of the planet. Inside our ship was the silence of the tomb, though I could imagine the shriek of the winds that my instruments told were sweeping around us. Then, suddenly, the instrument board went hay-wire. Dials swung, spun, twisted wildly and *stopped*.

Unbelieving I stared at them. As long as I had my dials to depend upon I was unafraid, but without them how was I to know where we were? What diabolical demon lurked in these opaque mists? How far was *down?* How long had we been falling? Where? How? Why?

Never before had I realized how dependent man is upon his mechanical senses, his chronometers, his altitude and atmospheric gauges. It was as if we were tossed back into the stone-age of man. We were a ship without a rudder, a man without a compass in the forest primeval. I feared to touch a control. A twist of a lever might send us flying parallel to the surface, lost in the luminous opacity that was neither solid nor gaseous, headed for the Red Spot itself.

A heavy wind caught the ship around the belly and I dared not do a thing to right it. There was the crackle of static electricity in the air, my hair stood on end as if each individual hair had been wired. Blue sparks flew from my clothes if I moved a single muscle. The ship had been magnetized; we were in a powerful electro-magnetic field!

Tentatively I reached forward a hand to the gravity-nullifiers. Would they work? Or had the plates of the ship's hull also become magnetized? I switched on the lower hull connections, waited. And behold, the mists were clearing. Soon we'd see the sun, the blessed sun. I was retreating.

But there was no sun! Instead, above us was lying a land, a land tinted a copperish red, a rolling country, a country of low-lying hills clothed in verdure, trees. The gleam of a lake shone in the far distances, a river meandered through a pretty country. That some of it was cultivated country was evident by the alternate patches of bare earth and blocks of growing things, geometrically straight lines between the blocks, low rock fences! But for a difference in coloring it might have been an Earthly scene, only here the verdure was for the most part purple, although I saw patches of red, blue, orange; and the soil was pale lavender.

CHAPTER II

The Lilliputians

● So! This was Jupiter.

When I thought we were hull downward, we were really upside down, and the nullifers had forced us toward the surface! Small stared as I stared, wondering, thrilled at our great find. His past fears were forgotten as he drank in that peaceful, beckoning scene. I was busy righting the ship, or rather trying to right it. Our gravitators made up or down the same to us whatever the position of the ship, but to land we must be right side up. And the ship was responding sloppily. It was sluggish, needed a great deal of coaxing. Before I had leveled it out we had approached the surface by several hundred feet.

I turned to Small. "Well, what do you think of Jupiter now, Jim? Ready to behave yourself?"

"Sure, Denny. I guess—I sorta lost my head. Nerves! Sorry I acted like a fool. You can untie me now, on my word of honor."

I came to his side, unbuckled his belt. "Where you bound for now?" He wanted to know as he stretched his arms and rubbed stiff muscles. He was trying to act as if the past were forgotten.

"Got to find the kidnappers—in case they managed to get through . . ." I switched the telescopic eye of our vision screen toward the ceiling, but the clouds above were serene, untroubled so far as I could see. "Guess, we'd better course 'round a bit, make circles if we have to, until we find something . . ."

In his attempt to make the past wholly forgotten Small became very much preoccupied with the forward screen, carefully scanning every foot of the surface below. The kidnappers might have landed. Once he called out that he had seen something suspiciously like a wrecked ship, but a more careful study showed it to be nothing more than a windbreak formed by the fall of a number of

trees. But the next time he called out, he had something to show. Below us lay a city!

It wasn't the sort of city men of Earth build on their far-flung possessions, but its collection of low buildings was enough to warrant the name. They were hardly more than round huts with conical roofs, set between narrow streets with plan and foresight, and there was a rude-stone fence encircling the village. Beyond were the well-cultivated fields of this native people. A herd of some sort of bovines were grazing in a field. But what sort of creatures the people were we could not guess; not a single inhabitant was in sight. Most likely all had fled for cover at the appearance of our ship.

The very fact that the town was deserted killed my sudden hope that this was a town-site erected by the survivors of the three scientific expeditions that had come here within the past year. They would not have fled from a space-ship. Had we not been seeking other game I would have brought the patrol down beside the village. I said to Small instead: "To think we've been patrolling this planet all these months while there were people just below our feet. We'll visit this place later, when we get the girl."

"You notice anything strange about this place, Denny?" Small wanted to know a few moments later. "I mean the—er—seeing qualities . . ."

"Yes, I've noticed. The light seems rather deceptive. Things that look close, suddenly change around, side-slip sorta."

"Yah! It's like looking through the small end of a telescope one time, and through the other end the next. You can't seem to get a decent perspective on anything!"

I had noticed the strange effect Small mentioned. It was as if our eyes refused to focus properly. A scene near at hand inexplicably changed its relation with us and the ship, and slid into the distance. The trouble seemed to lay with the quality of the copperish light that filled this world as if it were denser in one place than at another. It was very disconcerting.

Small cried out again that he had sighted a second village, but like the first, it was deserted also. I did not give it a glance, for I was otherwise preoccupied. Since breaking through the clouds I had been trying to calculate the height at which we were flying. Without the instruments working it was proving a tall order. I spoke to Small. "How're your weather eyes? How high d'you think we are? The dials all went fluey in the clouds."

He looked around speculatively. "Hum. I should say the ceiling's 'bout a thousand feet up, and we're—no, it's only five or six hundred. Damn this light I . . ."

"Don't bother with the ceiling. How far are we from the surface?

"Why, I should say we're six or seven hundred up. No, about four—er make it seven . . ."

"Make up your mind." But I knew he could do no better. It seemed to our eyes that either our ship was bobbing up or down, else the land and clouds were unsteady, shifting. According to my calculation, and the relative size of the landscape below us, we should have been from seven to eight hundred feet up, but what with that unsettled appearance of everything, and the distance of the horizon it didn't seem to agree at all.

I said as much to Small who laughed: "You seem to be forgetting that this world is just eleven times the size of Earth, and therefore your horizon's only eleven times further away, or something to that effect. I ain't the navigator, though. Figger it out yourself."

I had no time for figuring, however, for in the next instant Small was screaming that he had sighted the remains of the kidnapper's ship. It lay near what looked like a huddle of low hills, its twisted shell quite recognizable from the height at which we flew. It must have had a terrific crash to have cracked up the way it was. I doubted anyone could have lived through such a crash. Still, someone might have survived, and fervently I hoped it was the girl.

With my hand lightly pressing the de-gravitating lever I felt out our descent foot by foot since the dials no longer registered, but, as I have already explained, nothing was responding properly within the ship. Suddenly I was horrified to see the ground rushing at us with terrifying force. I yanked back on the lever under my hand, but *it was jammed.*

All I remember of that crack-up was the ear-splitting shriek of Small's, a terrific soul-filling crash, and then darkness, a heavy sticky darkness that hurt.

● My return to consciousness was slow, full of dreams.

It seemed I was in an ant's nest, and hundreds of tiny things crawled over me, pinching, pulling me. There were tiny, piping voices, and at the same time a great pressure, as if tons of stone, were weighing me down. I awoke, but the pressure did not leave me, and my body was a dull ache of pain. It hurt to breathe, it hurt to open my eyes.

"Denny, Denny, my God, where are you?"

It was Small's voice that forced me to open my eyes. It was with effort that I brought my own voice from my diaphragm. "Here, Jim. Lord, turn off that light!" My eyelids seemed weighed down by the copperish light that flowed into them.

"I can't see you," whimpered Small, terrified.

My interest was in other things. I found I was lying on my side, in a tangle of tiny ferns. I was on my right side, and my right arm was under me, while the side of my face was pressed against the ground so the odor of the fresh earth and vegetation was in my nostrils. I tried to lift my head, but was astounded to find that that was an impossibility; I couldn't even lift a hand, nor a finger!

Move I could, however, and I moved my head a trifle, only to be startled by the explosive "Ouch" that burst from between my lips. No one had pulled my hair since I was a kid, but now it was as if someone had pulled out a handful. I had to move my head again to discover that it was my own action that caused the pain.

Raising my eyes, I sought to find what it was that was catching my hair, only to see the supine form of Jim Small lying a few feet from my eyes. Slowly my eyes ranged over his form, and in that survey I received answer for my own predicament. Small was *tied to the ground,* bound in innumerable places by tiny strands of cord, thin, wire strands that crossed and criss-crossed his chest, his legs, his arms, his head. There were even tiny strands of wires tied to individual strains of his black hair! And each little wire was held to the ground by tiny wooden pegs!

Unlike me, Jim lay on his back, and that was his reason for repeating: "Denny, where are you? I can't see you!"

"I'm right beside you," I said after I had gotten over some of my astonishment.

"What's wrong? What's happened? Why can't I move?"

"Well, for one thing, you're tied to the ground, pegged by little wires. Your hair—gosh, you look funny!" I began to laugh, a high hysterical laughter. It was ludicrous to see a six-foot six man pegged to the ground by thin wires. The laugh, however, hurt my strained chest.

"My head! Who the hell tied me up like this?" Small had attempted to lift his head with the same results that I had.

"Your hands, try to free your hands first," I gasped. "You'll wrench every bit of hair out of your head that way . . ." As I spoke I tried to free my hands, astounded that such simple effort should cost so much. It was as if my every muscle weighed a hundred pounds, my hands were just heavy lumps of bone and flesh. I could not so much as free a single finger from the tiny wires. I tried concentrating all effort on that left hand of mine, and though I felt it move I was *not strong enough* to break the bonds that held me down. After that single try I was glad to rest. And Small, likewise, rested after a single effort.

"For cripes sake, what's happened? The ship? Where is it?"

Again I did not answer Small, for something had stepped within my line of vision. As I struggled with my bonds it had come through the ferns and stood staring into my incredulous face. I thought of pixies and brownies of the story books of my kid days, for just such a creature was the Lilliputian Jovian. In color it was grass green, and it had the widest mouth I ever saw, it slit the creature's wide face from side to side so that I could see two rows of uneven yellow teeth and a flaccid purple tongue. It had round shoe-button eyes of vermilion red and long pointed ears that lay flat against the sides of its round bald head. Its nose was a round shapeless blob in the center of an incredibly ugly face, and it did not seem to have a chin at all. But these were not the most startling feature about the creature; it was its size that astounded me the most, for it stood just six inches high!

● Six inches high! A man? But was it a man? It was a biped, for it stood erect on two short thick legs, and had two short arms and a round upright body, but I was unwilling to place it in the same category as man. It was only a caricature of the *Genus Homo*. Still, I quickly discovered that it possessed man's fiendish appetite for torture! Drawing a tiny, though long bladed knife from its girdle, the little green man came forward, and although I drew back as far as my bound-down hair would allow, it pricked my chin with its knife!

Darting back again that little travesty of a man shook its fat sides laughing at the ejaculation of pain it had drawn from my lips. The knife-prick was scarcely more painful than a pin-prick; it was really the tug I had given my hair that hurt. But I was seeing red after that, hating the little green thing with all my soul. Sticking a man that was down!

The midget beast was not alone, for there came a dozen or so of his prototypes to stand before my face and laugh. Green things, round and fat with ugly faces and inch wide grins. Practically naked, they wore little aprons of red cloth strung from the hips. Pouches hung from the girdle holding the aprons in place, and they carried knives in sheaths on their belts. They did not stop with pricking my chin; my lips, nose and cheeks came in for their share of torture, and if I did not wince enough for their pleasure they stuck their knives deeper, so that blood came. And how they laughed, throwing back their heads in wide-mouthed glee, jumping up and down in delight because they could hurt a giant!

A howl from Small told me he had come in for a share of the same treatment. Lifting my eyes a moment I saw that his body swarmed with little beasts, male and female alike, for the female of the Jovian species was just as fat and ugly as the male, and just as cruel.

Again and again they pricked me, but I did not cry out any more. Tiring of their play they disappeared as quickly as they had come leaving Small and myself alone once more. Unable to get my hand free I decided to free my head. Gritting my teeth against the pain it would cost me I gave what seemed to me a mighty tug. All I got for it was pain; my hair remained fastened to the pegs. There was that inexplicable weakness my every effort brought me, and in desperation I made up my mind to lie quietly several minutes in hope that my normal strength would return. Time and time again I sought to pull away from my bonds without success. The little wires seemed forged from keil*, and my strength would not return.

Now I noticed a darkening of the sky. It did not grow altogether dark and because the clouds retained some of their luminosity the night of Jupiter was as bright as a brilliant moonlit night of Earth. Jupiter rotates on its axis every nine hours and fifty-four minutes, therefore, the night was short, less than four and a half hours long.

Small had, likewise, given up the effort to get free. Fitfully we slept. Then it was growing lighter once more and our tormentors came to torture us again. I closed my eyes and tried not to flinch when tiny knives pricked me. I was horribly thirsty and wondered if some of my weakness might have arisen from a lack of nourishment. I had no way in knowing how long I had been "out," how long it was since we had fallen on Jupiter.

They did not prick me this time, however. I felt something plucking at my lower lip, raising a corner. I gritted my teeth against the momentary pain I expected, but instead of pain something hard pressed against my teeth, and there was a pungent odor in my nostrils. Opening my eyes a slit I saw that a half a dozen little people were attempting to shove something into my mouth. I focused my eyes carefully so that I saw, beside my nose, a pile of small brown pellets. One of the tiny monsters had pushed a pellet between the gap between my front teeth! At first, I thought it might contain poison, and started to shove it out of my mouth with my tongue. A delicious sweet taste filled my mouth. Whatever it was, it was good. Perhaps, after all, the little beasts actually intended to feed me. Had they not gone to the trouble of making Small and me prisoners? And prisoners are usually fed.

Another pellet was shoved into my mouth, and this time I took it gladly, and at my voluntary action the little creatures danced up and down as if in joy. They were glad I was ready to eat. Well, thought I, let 'em bring it on, poison or not. I opened my mouth wide, wondering

*A metal of Venus having a greater tensile strength than steel.

just how many of the brown pellets it would take to fill that growing maw that was my stomach. The green men seemed to have some idea of my capacity, for a long queue of them were winding up the path between Small's body and mine, bearing on their backs little red bags filled with brown pellets.

My mouth was just about on the level with the Lilliputians' shoulders; they could just manage to pour a bag of pellets into it without the need of ladders. I allowed them to empty two bags into my mouth, then I closed it to chew and swallow the pellets. They were bread-like in texture, but seemed also to have a slight thirst-quenching quality. I realized that at the rate we were going it would take an hour to fill my stomach with the sweet tasting pellets. The green people thought differently, for after filling my mouth seven or eight times they ceased their ministrations, and now a new band approached me, carrying what looked like stuffed animal skins on their shoulders. They proved to be filled with liquid, and in design were like the wine-skins of the ancients of our world. These, however, contained the most tasteless liquid it has ever been my fortune to sample, but it cured my remaining thirst.

CHAPTER III
In Slavery

● When I had drunk from about five of these skins the green people deserted the vicinity of my mouth, but they did not leave me. I could feel them crawling over my body, fiddling with my hair. Their weight was surprising for their size, for each must have weighed from three to five pounds. They were all over me, and I could feel them tugging at my clothing, hacking at it here and there. In fact, looking down at my chest, I saw two or three of the little creatures with knives in hand struggling to slit the heavy material of my tunic!

I let out a roar of rage, but though they glanced at my face they paid my protestation no further attention as they continued their work upon my clothes. I could feel them down around my legs, ripping and tearing, at my waist, at my shoulders and my back. And in my rage over their sanguine mutilation of my uniform, I struggled to heave myself upright. This time I found that I managed to move somewhat. A finger of my left hand broken loose from its wires, and part of my hair came free, while a wire snapped across my chest. The little men did not like that, for the next thing I knew a dozen knives were pricking me in a dozen different places, in my neck, my shoulder, my hand. Again I tried to free myself, and again I was pricked here and there in punishment.

Two or three little men appeared in the vicinity of my eyes, and I saw they were armed differently than the others. They carried a long wooden shaft, longer than their own body, and each shaft was topped with a mean weapon. There were two long prongs, each ending in a wicked hook! I was to feel the savage bite of those prongs, for the next time I tried to move against the will of the little people, a half a dozen of those things were plunged into my flesh, and twisted. Small though they were, they hurt horribly. After that I had more respect for the wishes of the green men.

Small, who had also struggled to get up, had a taste of this new weapon. He was cursing and sputtering. "A hell of a way for full-grown men to be treated, the blankety, blank so-in-sos. I'll crash every blasted one of them to a pulp when I get my hands on 'em."

Later, I had to laugh at that reservation of his "when I get my hands on 'em." The Lilliputians proved worse than mosquitoes once they got started. After about an hour of working around us, they seemed ready for the next move. Suddenly I felt that a hundred bees had attacked me. From all sides they came with knives or hooks. Something gave my hair a terrible tug; then a dozen or so of them came racing up the lane between Small and me as if they were going to plunge their weapons deep into my face and neck. Others were at my legs, my back, my chest.

A yell broke from my mouth, and I gave an upward surge. It brought me to a sitting position, but that single action cost me dearly. It was as if I had used every ounce of strength in my body, that hundreds of pounds weighed me down. I sank down to the support of my elbow. I felt that I, who had come to Jupiter a young man, was now a rheumatic ancient. I got myself to a sitting position once more, realizing that dozens of little fiends were pricking me from all sides, anxious for my rising now. Slowly the truth dawned on me.

It wasn't age, nor lack of strength that made of me this heavy, slow-moving animal; it was Jupiter, a world eleven times larger than my own natural globe, and my hundred and ninety pounds of flesh and bone weighed in the neighborhood of four hundred and seventy-eight pounds here. My muscles were not built to sustain that amount of weight!

There was a remedy for this condition. In our ship were two portable gravity regulators. If we could only get hold of them we could nullify the gravity pull of Jupiter to Earth normal or even more if we wished. These machines had been developed on Earth even before space-navigation had come, and they had proved a great boon to mankind in his task of overcoming the worlds he conquered. Without them the settling of the smaller moons of Jupiter would have proved next to impossible because the low degree of gravitation made walking almost impossible. The gravity-nullifier plates of the space-ships are merely a later development of the small regulators.

Groaning and grunting I got to my feet, stood as erect as I could, and looked around me. I was looking for the 354. I saw that we had been lying in a sort of low valley enclosed by low rises which must have been large hills to the Lilliputians. The floor of the valley was thick with vegetation, tiny ferns, bushes and copses of trees that scarcely reached the top of my knee. And about twenty feet from where Small and I had been lying was the badly smashed patrol ship.

We must have hit the ground with a terrific thwack for one side was caved in, its blunt nose was half buried in a welter of torn-up trees and purple sand. There was a large ragged tear in the side facing us. Had it not been for the fact that the air of this world, only slightly denser than that to which we were accustomed, was breathable, Small and I would have cashed in the moment our ship struck the ground. And I was certain we had not come out of the 354 under our own power. A glance showed me I was right. A wide swath of broken trees, crushed bushes and ferns showed where our captors had dragged us bodily from the wreck! It must have been a monumental task for those little creatures, but owing to the way we had been treated, so far, I realized that their

act was not one of humanitarianism, but one from which they expected to derive some profit.

● The ship would never leave its berth under its own power, but in it were other worthwhile things to be salvaged beside the gravity-regulators—our guns, food, razors, a change of clothing, the first-aid kit. And I wondered if the radio still worked, if we could send out an SOS, to warn those ships that were to follow us, about the treachery of this monster world.

In my contemplation of the patrol I had forgotten the little people, but as I took my first step toward the wreck they reminded me quickly enough. With what seemed like a hundred bees they attacked me driving their knives and hooked spears into my flesh, and I realized that my body was alive with tiny fiends. They were on my shoulders, my arms, my head, on my chest, my back and straddling my legs. Carefully they had built little slings here and there to provide safety for themselves, and from my neck and shoulders were hanging wires of varying lengths which gave them easy means of reaching any part of my body they wished. There had been method in the slitting of my garments, and it was at these slits, for the most part, that many of them had taken their places with ready weapons to plunge into the flesh thus exposed.

One little chap, or maybe two, had places on my head, tied there safely with strands of hair and wire. Later when I got away from Jupiter I got a headache every time I thought of those little tormentors pulling on my hair, thumping my skull with little wood-shod feet. And seated on a sling a few inches from my chin was another green man. He did not carry a spear, but was armed simply with a knife. In the subsequent days, when his fellows had subdued me, he with pointing finger showed the way I was to go, what was expected of me. I named him THE BOSS. And since he was the only one of that whole demonical crew that did not at some time or other stab me I actually grew attached to the little fellow. He seemed less ugly to me, his grin less cruel.

Finding, however, that the green men did not want me to go toward the 354 I determined to rid myself of those who had taken such complete tenancy of my body. As if it were something apart from myself I brought my hand up slowly, slowly to the level of my chest. I could feel straining cords in my neck as I did so, so great was that single effort as I sought to best Jupiter's mastery over me.

Up, up, came the hand, the fingers slowly bending forward so as to be ready to pluck away a green man, but as if they read my thoughts the little men were ready for me. Those who would come within reach of my hand swung themselves out of its way on their wires, while the two stationed on the cuff of my sleeve plied their cruel spiked spears, twisting them as they plunged them into the thin flesh of my wrist.

They were not gentle, those little monsters of torment. They were aware that I was a creature out of my element, and that they had the power to hurt me. The response of my Jovian bound muscles was too slow to protect me from them, and by the time I could bring my other hand to the defense of the first they were stabbing me in other parts of my body. With a dozen hands I could not have protected myself. Besides, all this while, there were those beasts on my head, bringing tears to my eyes, with their hair-pulling activities, each time I dared make an action the whole party objected to.

In less than two minutes after I had gotten to my feet I was completely subjected by them. Their movements were so swift it hurt the eye to follow them. Let me reach for one of them and by the time my hand neared him the little fellow had climbed out of reach while those everywhere else bedeviled me. Burning stabs of pain seared me, crippled me, reduced me to a moaning mountain of quiescent flesh. I shivered at the thought of another stab. I did not need to look for Small to know he was being treated in same fashion. I could hear his heavy curses and cries of pain and rage as his tormentors evaded his groping hands. We certainly were in a fine predicament.

It was not long before I was quite willing to do whatever my captors wanted of me. I was not even given the luxury of rubbing my wounds! You can talk of your great silent heroes of fiction who can laugh and joke at pain, but let them be subjugated to a hair-cloth straightjacket and set them within a swarm of stinging bees and see how long they are great and silent, for that would be comparable to the horrors Small and I were experiencing. Man could not have bethought himself of such torture as we were subjected to by those midgets of Jupiter. Presently they had me moving lumberously forward, away from the wreck of the 354, shuffling my heavy feet through the tangle of jungle.

● I realized now why Small and I had been deceived as to the height at which we had thought we were flying over the planet. The men of Jupiter were not only diminutive in size, but their country was, likewise, in miniature. Instead of having an altitude of eight or nine hundred feet we had actually been flying at a height of no more than one hundred and fifty to two hundred feet. The relative smallness of the landscape, together with that deceptiveness of the light, we had noticed, had caused our ruin. And that accounted for the fact that not one of the three scientific expeditions to Jupiter had ever returned. They too had been deceived and more than likely we would find their ships ruined like our own!

Fields, hills and forest were all in proportion to the size of the Lilliputians. What had appeared from the flyer to be a landscape miles long were really little plots of ground but four and five feet square. Rivers were threads, and a nearby lake was pocket-handkerchief size. Large though Jupiter is it had fostered a miniature life. Cooling slowly its crust is actually only a few miles thick. Life here has developed in miniature proportion. Possibly that accounted for the almost tropical temperature, and for the shield of clouds less than four hundred feet above the surface.

We appeared to have landed in the foothills of a mountain range. To Small and myself these mountains were hardly more than hillocks, the highest of which we could see in the distance, was all of twenty-five feet in height, but to the little creatures of this world they were great barriers, and because of their roughness practically unscalable. To the right of us were the cultivated fields, but it was not in that direction we were led. Our captors directed us to the wild upland where straggling verdure found footage among the rocks. At each step tiny trees snapped under my dragging feet, whole woods were

squashed as Small and I lumbered on under the impelling pricking of our masters.

What seemed hours was in reality only minutes, and when my guide held up a tiny hand that indicated a halt, I found we were facing a stone quarry. At my feet swarmed hundreds of little people in a pocket in the side of a hill where they toiled. Here was a rubble heap of hundreds of stones, pebbles for the most part, though here and there were scattered *large* boulders that the midget workers had not succeeded in cracking up as yet with their tiny picks and mallets. On little wooden sledges, five or six inches long, the little people had been piling the broken stone.

However, at our coming, all work had stopped in the quarry. With elaborate gestures The Boss pointed to the ground. They wanted me to fill the commodious pockets of my tunic with their pebbles! It took several minutes before I grasped what they actually wanted, my brain processes seemed as slow as my body. The green man, impatient at my sluggishness, probed me the while, and it was not until I began to pluck stones between my clumsy fingers that they desisted. Glancing sideways I saw Small at some distance away bending over a second stone quarry.

At best, it was a back-breaking job, picking tiny pebbles from the ground. To fill one hand and raise it to my tunic pocket was a job that needed all my concentration, and the little demons gave me no rest. More than once I thought of rebellion, but the flesh was weak and I cringed at the thought of a renewed attack by the green men. I was not yet in condition to steel myself against their onslaught, I was still too dazed to take my bearings.

That Small and I eventually won free of the Lilliputians was not due so much to will power as it was a berserker rage when we suddenly lost our heads . . . but there, I'm getting ahead of my story. For the present there was nothing to do but obey the promptings of my captors as a safeguard to my skin. My toil, on the other hand, was accomplished to the accompaniment of tiny pipings as the little people applauded my labor, laughing and dancing up and down in glee when I plucked an unusually "big" stone to add to my growing store.

At last my pockets bulged with stone. The Boss signified I was to "dump" my load elsewhere, and under the guidance of his pointing finger I went shuffling along, stumbling over a low hill or catching a foot in a tiny coullee. Had I refused to go I knew the "mosquitoes" would be at me again. To one side of my path I saw the road by which the Lilliputians trundled their sledges to their destination, a six-inch wide path along a water course, too narrow and twisting for my heavy feet. And now we came to the end of the road and stepped into a wide valley set between two forbidding *mountains* rising six to eight feet on either side.

Here again were hundreds of little people at work. Their business appeared to be that of building a wall of stones across the valley floor from mountain to mountain, a width of about seventeen feet. The wall was already as high as a Jovian man, and about eight inches thick. There were several classes of workers. Those who carried the pebbles from the heaps where they had been dumped to the wall; those who were laying the pebbles in the wall, and those who followed with a cement-like mixture to pour between the spaces of the uneven stones.

I was directed where to empty my pockets. Those in the vicinity of the dumps backed away to clear the path for me, although those on the growing walls did not leave their positions as they stared at me curiously for a few moments. Their foreman, however, drove them back to work, and I had the impression that this wall-building was an important factor in their lives, and that not a precious moment was to be lost.

Just as I emptied my pockets Small came in with his load. Blood trickled from innumerable little wounds on his neck, hands, chest and back where his tunic was torn away to expose the flesh to the knives and cruel hook-spears of his monitors. He was cursing vehemently with every step he took.

When he saw me he shouted, "Well, wha'd'you think of yourself now, Mr. Patrolman? Wouldn't take life easy with Capan in the Saturn hideouts, would you? And how's your Miss March? By God, I hope she's getting hers like we're getting ours . . ."

"Fortune of the chase, Jim. But listen I've got a plan, if we could only get back to the ship . . ."

"With these bees all over you?"

I was about to say more but the green men did not care for our dialogue. Both of us were attacked simultaneously all over our anatomy. Small tried to catch some of his tormentors, but as usual they were too quick for him. He was unloading stones from his pockets as I departed for the stone-quarry again. When I seemed too slow I was goaded to greater haste, and after each salvo I tried to do my work as neatly as the gravity of Jupiter would permit, while in my heart my rebellion grew. When I passed Small on the way to the wall he gave me a teasing laugh, but I was more interested then in watching where to place my heavy feet.

CHAPTER IV

The Men in the Cave

● I did have the nucleus of a plan of escape in my mind, but it centered on the 354 and the gravity regulators, of course. And it was a matter of how I was going to manage to get my captors to permit me entry into the ship. If I could in some way convince them that the flyer held something that would be to their advantage if fetched, I could possibly induce them to take me back there, but how was I to do it? Then it came to me.

The little men had realized that Small and I could haul more stone in one trip than six of them with sledges could in two or three trips. Why not show them that if I had a sledge or cart many times larger than their sledges that I could haul almost enough stone in one trip for the building of the whole wall? But how was I to tell them that? I knew that the trees of this world were too small for such a purpose, and in the 354 there were sheets of metal that would have done the job well. Somehow I must convey that thought to The Boss.

Perhaps with such a subterfuge I could actually get back to the ship. I respected the intelligence of the little people, for though they had progressed but a little way from the savage state, apparently, they proved they had engineering capabilities. The wall building meant something momentous in their scheme of things, and I had to admire their ingenuity in enlisting the services of men ten times larger than themselves to complete it. Could I fool them, however, into letting me return to the 354?

The next time I put my hand in my pocket to remove the pebbles I managed to bring out my handkerchief at

the same time. Holding up a finger I angled for The Boss's attention. The little green man proved his intelligence by lifting his questioning eyes to my face. Thereupon, I pointed to a six-inch sledge that had been deserted by some workers, and spread my kerchief beside it, seeking to convey the fact that I wanted stauncher material with which to build a sledge as large as the piece of cloth, if not larger. And The Boss caught on.

Cupping his little hands he yelled something in his piping voice to his fellow men on the ground, and they cleared a way for my cumbersome feet, only it was in the wrong direction—toward the mountain on the left. My heart sank. I demurred, refusing to go forward, trying instead, with gestures, to make it understood that only from my ship could I get what I needed. Either he did not understand, or understood too well, for now there came a dozen stings to probe me toward the mountain.

I made the air about me blue with my cussing, but in the end I shoved one foot after another toward the "mountain." The incline was rather steep, but by using both hands and feet I managed to pull myself heavily to its top. I heard excited cries from the creatures astride me as they were jostled about; the fellows on my head clutched wildly at handfuls of hair to prevent their falling, but all managed to stay on.

Around me stretched a broken landscape, a jumble of hilltops divided by narrow ravines, overhung by frowning cliffs and overgrown with a mat of gnarled trees and other herbage. As I moved on laboriously I slipped and slithered, managing to keep my balance somehow. It was a rising country, each hill higher than the last, but in time we got to the topmost and I saw why I had been brought here. It was a space ship, wrecked as ours had been wrecked, the one that had attracted our attention from the skies, but whereas we had taken it for a ten-man flyer it was only a two-man bulldog.

It lay flattened out on a long low plateau in the midst of the broken mountains, and had dug itself deep into the ruffled surface, for part of it was completely buried. It must have hit the ground with an awful whack, for all the land around was badly furrowed and torn. There was scarcely a whole piece of metal left of the wreck.

On a twisted sheet of rusted metal I made out the name *Comet*, and knew this to be the remains of the first scientific expedition that had come to Jupiter, eight months ago. Vaguely, I wondered what had become of the two men who were its crew, both scientists of some renown in the Federation. A few feet from where I stood was part of my answer, for sticking out of the debris I saw the bones of a human hand!

I would have given a great deal to know what had happened to the other man of this ill-fated voyage, but The Boss had other things on his mind when I sought to question him with gestures. He was motioning that I was to hurry and make my sledge. And to hasten me there came the prick of a dozen knives in a dozen different parts of my body. Crying out in pain I fumbled among the mass until I found a piece of steel the size I needed, roughly four feet square, pitted and scratched, but whole. It was fastened to the wreck by shreds of twisted metal.

Nearby lay the burnt end of a girder, and by using this in lieu of a sledge hammer I managed after much effort to free the single sheet, twisting it around and around to break free the last shred that held it to the whole. What I saw when I lifted it made me sorry I had been so hasty in choosing this particular sheet for my needs; for lying, just out of reach, under a jumble of odds and ends was what looked like the head of a gravity-regulator case. Trying not to show my joy I made a move toward the case, but as if they had read my mind every little beast astride me was alert. Not only did they plunge their knives hilt deep into my flesh, but I felt the cruel pinch of dozens of hooked spears.

But with that regulator in sight I was not ready to give in. Steeling myself against the pain I took another step toward my objective, but my haste was my undoing, for I had not looked at the spot where I had placed my foot. Something gave under me, and with a yell I went down, breaking through the welter of twisted girders and rotted steel, and I fell to my knees. I fell forward, cutting my hands badly and ripping my clothes more severely than the Lilliputians had done, but the worst of the fall was the fact that I had fallen the wrong way, away from the object of my desire.

● The fall had stunned me, and all the air seemed beaten out of my lungs. Two of the green men had died in my fall, one was crushed under one knee, the other was almost torn in half when my fall scraped him against a ragged piece of steel. The others, however, took advantage of my fall, punishing me cruelly for my disobedience to their rule, forcing me to my feet and away from the wreck while I was still in a dazed condition.

I was bleeding in innumerable places, and I felt as though I had been through a meat chopper. And when I realized they were forcing me away from the wreck and tried to turn back again, every beast astride me fell upon me more viciously than ever with knife and hooked spear. So furious was the attack on my head, I felt that shortly my skull was sure to crash in while my eyes were blurred with tears of pain. Under that rain of punishment I was only too glad to go the way they wanted me, back toward the valley. I was unaware of the fact that I was not carrying my entire allotment of tormentors until a few minutes later I was appraised of the fact that five little green men were dragging after us the sheet of steel I had loosed from the wreck. Now I was ordered to pick it up to add to my burden. Beaten in body and soul I was driven back across the hills.

I realized that my only chance for escape was to pretend an utter docility, so that in time my inhuman masters would forget to be so vigilant. Then as a sort of salve to my conscience I told myself that after all that regulator from the *Comet* could no longer be of much value since the life of its *thurla* battery* is but six thousand hours while it had been almost eight months since the Giloe expedition had left Io.

Thus I tried to make excuses for myself, telling myself that, after all, the struggle I had put up was not worth the game, condoning my own lack of courage to sustain the pain the Lilliputians had inflicted upon me. Of course, had I been a story-book hero I would have gritted my teeth, closed my brain to the pain and gotten that regulator regardless of anything, but being a mere patrolman I was not so heroic, and so I continued as a slave to the six-

*The thurla battery takes its name from the Martian acid which is used in its manufacture and which is capable of sustaining a single electrical charge for six thousand hours, although individual storage batteries have been known to last a much longer time, while others have deteriorated much more quickly. Each battery, however, carries a six thousand hour guarantee.

inch high green men of Jupiter.

Arriving in the valley where the wall was slowly growing I found it was meal-time. The little green people were dining upon the little brown pellets which appeared to be their staff of life. On the ground I found a fair-sized pile that had been dumped for me, and I was allowed to lower myself beside it. Food was handed to my riders, then came tiny skins filled with their abominable liquor. About a half a dozen of these were brought for me, and it was with difficulty that I unwound the wires that stoppered the mouths.

When I had finished eating, I noticed that the sky was growing pale. Night was coming on. The Lilliputians had noticed it too, for I saw they were making ready for sleep. Tiny fires had been built in the valley behind the wall, and the weary workers were composing themselves to sleep on the hard ground, but evidently it was not meant that I should sleep here. I was goaded to my feet and The Boss was pointing out a new way for me to take. We left the valley but went in a direction opposite to that of the quarries. Soon I discovered how the little people intended to keep me safe for the night.

Running through a rather high hill (about eighteen feet in height) was the open mouth of a cave. Fifty Jovians could have stood abreast the opening, but I had to stoop to climb within. I was ordered to lie facing the opening and I found there was more than enough room for my feet. Most of my riders had already slid down the wires dangling from my shoulders and belt, and now the remainder, including The Boss, got off. But I was not to be left alone after all. About thirty strange green men bearing things resembling quivers of arrows on their backs and bows in their hands took their position in front of the cave mouth, facing me.

All during the hours I had toiled hauling stones I had been aware of other life than the green people moving at my feet; small animals, tiny flying things had scurried out of the way of my heavy feet, beat the air before me, things so small I sensed rather than saw them. Now as the Lilliputian archers stood before the cave, a tiny deer-like creature showed a head between blades of some tall grass beside the cave mouth. In a twinkling of an eye one of the archers fitted an arrow to his bow, which was somewhat like the cross-bow of the middle ages. The arrow did not hit the deer in a vital spot; it simply pierced its rump as the animal turned to flee, but that single prick was enough to halt its flight. It fell, rolling over and over, and lay still. The arrow had carried a minute drop of some virulent poison on its tip.

I guessed the meaning of that gesture. I was being warned that an attempt to escape during the night would bring a shower of poisoned arrows upon my head!

Shortly thereafter, I heard a shuffling coming toward my cave. It sounded like a herd of pachyderms, but it was only Small, led by his captors. He was ordered into the cave beside me. He swore as was his habit now, but he obeyed. He watched warily while the little men climbed from him, leaving him faced by a handful of guards with tiny arrows. I read his thoughts and told him of the demonstration of the arrows and the deer whose carcass, as a gentle reminder, was left where it lay.

Small grunted. "Poison, eh? How much harm do they think a minute drop of poison will do us? If I weren't so gosh-darned tired, I'd show 'em how much I'm afraid of their poisons . . . "

To change the subject I told him of my own adventures at the wreck of the *Comet*. He was interested in the regulator I thought I had seen, but he made no comment over the fact I had failed to retrieve it. "Well," he said, "one regulator won't do us much good . . . "

"The other one ought to be found unless only one man was killed when the ship fell, and the other man got away with it."

"Yah, that's right. And if I ever get my hands on that regulator it would be just too bad for these half-foot high beasts. Who'd ever thought that things so little could be so savage? I'd a thought though, that men of Jupiter woulda been giants, not midgets . . . "

"I remember reading somewhere that the larger a world the smaller its creatures to offset the gravity or something like that. Ever read a book called 'Gulliver's Travels,' Jim? It's a classic of . . . "

"Naw, I never was much for reading."

"It told of a man who found himself among a bunch of little people, just like these. Lilliputians, he called them . . . "

"Well, I guess these hobgoblins read the same book," he growled, and almost as soon as he finished speaking the big man was snoring heavily. I realized how utterly worn out I was. Every muscle, every bone ached, not only from the toil I had performed, but also because of the dragging force of this giant world. Not only my body ached, but my skin as well from the prickings it had received all day. I knew I was a sorry looking sort of man, and then I began to plan my escape anew. On that I fell asleep.

A yowling in my ear woke me from my dreams, and I opened my eyes to see that Small lay half out of the cave, holding his face with both hands. It was he who made those moaning sounds that awakened me. And in the bright glow from the overhead clouds I could see that our guards stood with arrows fitted in their bows staring menacingly at us both.

"What's happened?" I wanted to know.

Voicing some choice words from his vocabulary Small took his hands from his face and I saw that chin, lips, cheeks and forehead were filled with dozens of thorn-like slivers. He had tried to crawl out of our cave and for his trouble had received a shower of poisoned arrows. "God, they sting and burn . . . " he was moaning.

I leaned on one elbow so I could pluck the almost microscopic arrows from his face. Each arrow left a red spot that later turned brown and never left him, and he wanted to claw and scratch. I advised him not to in the advent they were really poisoned, hoping the poison would not seep into his blood.

I felt around my clothes to find if I had my emergency medicine kit on me, but it was missing. Nor did Small have his, and the guards before the cave made no move to relieve him in any way. All we could do was lie down and wait for the morning, trusting that the poison would do Small no real harm. I could not sleep anymore with him groaning beside me, but shortly thereafter I saw that the sky was growing brighter. A new day had come.

The sound of approaching green men came to our ears that told of our returning masters. I recognized a number of faces. Then The Boss came to order me out of the

cave while the archers stood to one side covering me with the full menace of their arrows. Small's face was horribly swollen, splotchy with red and brown sores. His monitor motioned him to hold still while a dozen little fellows climbed on each other's shoulders to reach the different parts of his face so as to rub some sort of unguent on each of his wounds. Whatever the salve was it soothed and for the first time since his arrival on Jupiter I saw a smile on Small's face. The salve took away the burning, but not the colored spots.

We were led to the valley where food awaited us, then with my steel sheet I was ordered to the quarry for more pebbles. I wanted a cord so that I could drag my improvised sledge. After a few moments delay I made The Boss understand what I needed. He called to his fellows on the ground and two little men rolled a coil of wire toward me. I tried the strength of a piece, and figured that six or eight pieces wound together would do the trick. I measured off six feet, and doubled the rest of the wire back and forth until I had a strong enough tow line. I fastened one end to a broken twist of metal and felt almost proud of my accomplishment when it was done. So were the little people proud, jumping up and down as they viewed what was to them, a monster sledge.

Next came the task of filling it and dragging it carefully over valley and hillock. At one point along my road there was a rise of ground more precipitous than elsewhere and I had to pick up one end of the sledge to keep from losing my entire load. Wild cheers from the workers in the valley greeted us when I arrived without losing a single pebble.

Small came along at this point with pockets bulging and fresh blood trickling from wounds on his hands and face. He wore a heavy snarl, and sneered when he saw my handiwork. "Hand in glove with your slave-masters, already, ain't you?" he commented. "Why, soon you'll be eating out of their hands and doing tricks for 'em."

I grinned. "There're a smart lot at that, Jim. They know how helpless we are and they're smart enough to profit by it . . . "

"Well, the blankety-blank pin-stickers won't get me to drag sledges around for 'em," was Small's bitter rejoinder.

But the green men were of a different mind. A yell broke from Small's lips at a particularly vicious sally from his enemy. He raised a hand to slap down the nearest knife wielder only to receive a second attack from the rear. Again and again he sought to reach his tormentors, but they were altogether too quick for his slow-moving hands, and each of his actions brought him retaliation in the form of hair-pulling and more furious attack. As I turned back toward the quarry I saw that he was headed toward the wreck of the *Comet*, apparently to get material for a sledge for himself. I yelled after him. "See if you can get that regulator! It's beyond the skeleton hand!"

I carried three more loads to the valley and on the next trip saw Small carefully balancing his sledge which was several feet larger than my own. "Any luck with the regulator?" I asked him.

He shook his head. "Naw, they took me to the other side of the wreck. Anyway, it wasn't a regulator."

I wondered if he had lied. But for what? After all the top of the portable gravity regulator does look a lot like a mintal valve head, and I may have been mistaken. I said no more about it. What was the use? I knew the Lilliputians were not going to give us a chance to get hold of anything that would help us throw off their yoke. They seemed to know that we had double reason for our desire to get back to our own ship, but slyly they were not going to give us that chance.

For two more days the same program persisted. Small and I trundled sledge after sledge of stone to the growing piles in the valley while the wall, in turn, was growing rapidly as hundreds of little men, many of whom had been relieved at the stone quarries by us, worked continuously. That they even toiled at night was proved by the fact that the wall was higher each new day than the night before.

Small still rebelled at his captors, but now I seldom felt a knife-prick. The brown spots left by the poison arrows on his face did not go away, and his face and wrists as well as any bit of exposed flesh throughout his body showed dozens of fresh wounds together with old and newly healed ones. That together with his matted hair and growing beard did not make Small a handsome spectacle. Nor, for that matter, was I a very neat-looking person. My beard was growing and I found it impossible to keep my hair combed with my fingers, while my ripped uniform was dirt-stained and filthy.

But for the remnants of our uniforms it would have been difficult to identify us as members of the Jovian Patrol.

CHAPTER V
Warl

By the noon of the fourth day of our enslavement the little people realized there were more than enough piles of pebbles in the valley for their purpose. Small and I were then put to work on the wall itself. With our aid the work went faster. We piled the stones in place while the green men poured in a kind of greenish cement. The wall was practically four feet in height, and seemed near completion. More and more I wondered at its purpose, but it wasn't until the following day that I had an inkling of what was coming.

As I worked, I had noticed occasionally one or two green men go beyond the wall, sometimes not reappearing for many hours. I began to guess that they were scouts sent out to spy on some enemy so that the wall-builders should not be taken unawares.

The valley in which we toiled was about thirty feet long, from eight to seventeen feet in width, tapering toward a narrow pass at its further end, while the entrance from the direction of the quarries was about eight feet wide. Toward the pass the hills rose preceptibly higher, frowning down upon the narrow twisting canyon that was scarcely three feet wide at its greatest breadth; and a series of forbidding, overhanging cliffs made footing precarious on either side. From that direction it was impossible to enter the valley except through the defile.

I was at work on the wall's top when I saw one of the scouts suddenly appear around the bend of the canyon. As soon as he hit the valley he turned to the left to climb the mountain so as to circumvent the wall. It was a difficult climb for him, and about an hour later he came around the wall thoroughly exhausted, flopping at the feet of a green man that I had noticed earlier as some sort of superintendent, doing nothing more than direct his fellows at work, often calling out to a foreman to hurry this crew or that.

At the runner's message this little fellow grew excited, calling a half a dozen men around him. They in turn were excited, and their agitation spread throughout the entire valley. Several of them were dispatched in the direction of their village that lay beyond the stone quarries, and I was ordered to lift several handfuls of tiny pebbles to the wall's top. With these, workers began to build tiny round towers, while others were filling in a parapet along the outside edge of the wall, work too delicate for my awkward fingers.

The villages must have been awaiting the call of the messengers, for shortly after I grew aware of the fact that reinforcements were pouring into the valley by the hundreds, then the thousands. I was astounded by their number, having had no idea so many of the little creatures existed. Surely the two villages Small and I had sighted from above could not have held so many; there must have been dozens of villages sprinkled among the low hills.

They came in orderly file, rank after rank, in companies, in battalions, led by their chiefs, thousands of them, filling the valley, mounting the hills on either side; swarms of them. They fairly bristled with armament, spears, arrows, bows, knives. War! What else?

Now I could comprehend this wall-building feat. Somewhere in this country beyond the mountain-pass were other villages, other Lilliputians; and they had declared war upon each other. Men they were, for all their diminutive size; men that coveted and hated and fought for the glory of their nation!

Who could help but admire the strategy of this tiny people that put giants to work building the wall they had engineered. Small, savages though they were, they had genius!

Nor was there any jostling in their ranks, no excitement as company after company took position inside the wall. Rude ladders had been run up to the wall's top, and dozens of little creatures climbed them, taking station behind parapet and tower even before the last pebbles had been set in place. Other companies took positions in the hills on either side of the wall, behind the natural barriers of rock and trees, deploying sharp-shooters here and there along the valley rim.

As for Small and myself, our monitors did not desert us, even though they had no immediate use for us in the forthcoming battle. We were hurried out of the valley, toward the stone quarries, but not too far away. We were merely ordered to positions at the mouth of the valley, out of the way, but commanding a full view of the entire battlefield. Either our riders merely wished to watch what was to come from the vantage point of our shoulders, else we were being held in readiness as a sort of reserve force. As things turned out I believe their intention was the latter. One thing was clear; they did not want us within range of the poisoned arrows of the enemy.

Nor was it long before the enemy showed up. They came, as they were expected to, from the pass at the end of the valley in columns of eight with the copperish light from the clouds glistening on their spear and arrow heads. In stature and size they were like the green men, only the color of their skins was different, for instead of green bodies they were copper colored!

There was nothing to tell the difference between the men and their chieftains except by the fact that the latter led the others. At the head of that first company were two leaders and when they saw the great wall of the green man facing them, cutting the valley in half they *halted*, mouths agape at the spectacle. But they quickly overcame the shock that the green men's master-stroke gave them. I could see them issuing orders to the regiments ranged behind. Now they came from the defile, company after company of copper-colored men glittering with armament, one company to the right, one to the left ascending the rough sides of the mountains to meet the armies they knew must be waiting them beside the great wall.

They came by the hundreds, the thousands, two serpentine armies mounting toward the wall, and although the green army was large I guessed the enemy far out-numbered them; that that was part of the reason for this stupendous feat of wall-building.

● The copper men were first to taste death. The sharp-shooters stationed in the trees and behind the rocks of the mountains began to pick them off one by one, then dropped showers of tiny poisoned arrows into the packed ranks of the climbing soldiery. Thoroughly undaunted, the first companies reached within a few feet of the wall ends, but they were bested before the battle began. From the wall top the green men had opened fire, and having the advantage of the higher position it was evident the invaders could not long stand against them. Yet, they fought like devils incarnate, new men rushing to the places of the fallen while they themselves planted telling shots.

The battle was terrific, and more than once I felt called upon to applaud the bravery of the enemy, which though it outnumbered the wall-builders by a possible two to one, was at a distinct disadvantage. But for the strategem of the smaller force it would have eventually won by the plurality of its numbers. It was a losing fight from the first and after eight or ten minutes of scathing fire and unfair hand-to-hand bouts the enemy was retreating; slowly, defiantly, only because retreat was the better part of valor.

Realizing this, the victors made no attempt to follow, for to do so would lose for them the benefit they had already gained. Dead and dying lay strewn all over the valley floor as well as on the hill sides, friend and foe alike, but during the lull in which the enemy backed out of firing range no attempt was made to succor them. So deadly was the poison of the Jovians few of the wounded that still lived could hope to escape the death already creeping through their veins. There was no quarter given in this titanic struggle of the Lilliputians, no prisoners taken. It was war to the death!

I wondered what would be the next move of the enemy. Surely the mountains were too impassable for more than a few men to traverse at a time; but soon I realized they had no such intention of so exposing themselves. The barrier in the valley was their objective. It was through here they must come or not at all. Then I had to rub my eyes at the vision coming toward me. I saw them long before they entered the mountain pass; their heads topped the mountains, four men like myself, no, five of them—lumbering, gravity-laden men, ponderously putting one foot before the other while dozens of little red creatures on their shoulders goaded them forward with spear thrusts!

So! The capture of giants from the inner planets was not original with the green men. They only imitated

their kind in taking as prisoners Small and myself. And at the sight of men like myself my heart lifted. I nudged Small who had all the while taken little interest in what was going on in the valley. He had simply slumped to the ground, back to the battle.

"Look, LOOK, Jim! Men, men like ourselves! The kidnappers! And look, Jim, one is a woman! It's Miss March!"

Small, however, was unexcited. His grouch was deep. He was for the moment beyond caring for anything but himself. "Yeah? The dame that got us into this mess? What about it? Do we cheer now—with these blankety-blank beasts sticking us all the time? The nerve of the little . . . "

As he spoke I saw him moving one hand surreptitiously forward, slowly, slowly, and I forgot my own elation as I watched him. I expected every second to see his masters discover that hand of Nemesis inching upon them, but the little fiends were too interested in the movements of their kind. My own monitors were turned likewise toward the battle-field, their vigilance relaxed, forgetful that there were enemies in their midst. But now that ponderously moving hand struck, Small's hand had fallen on three little green men who with backs to him were perched on his thigh, watching what was coming through the Pass.

A chill crept through me as their unearthly shrieks filled the air just before death came, smearing them out. Small had had a part revenge, but the murder of the three seemed to mean little as the rest of the crew ensconced upon his elephantine bulk went mad, plunging their spears deep into his neck, hands and head. But I had not realized to what depths Small had sunk. Pain meant nothing to him as he suddenly went berserk. The color of the thick blood of the three he had murdered was in his eyes. He was no longer Man. He was a brute bent upon destruction, revenge!

Rearing himself upright ponderously he no longer seemed to feel the prickings of the tiny green things upon him as one by one his slow-moving hands chased those within his vision. It was as if by terrific effort he actually overcame the gravity pull of the planet, else the little men were too terrified to save themselves as he plucked them off, crushed them, laughing when their blood oozed over his thick fingers. Several Lilliputians he dashed to the ground with all his might, two he pulled apart between his hands.

Then with an awkward, downward sweep of his hands he swept those still clinging to his shoulders and chest from him, and they went down clawing, slipping along the smooth cloth of his tunic, missing one hand-hold after another; then twisting, turning, they fell free.

This wild debacle lasted but a few moments. From the valley were racing a small horde of green men, anxious to revenge their kind. In a moment they would be swarming over Small and me. And now I realized that after the first stunned moment following Small's attack, my own slave-drivers were upon me, stabbing deeply into my flesh in an effort to retain their hold upon me, to drive me back, away from my berserk companion. But Small's mastery of the situation, and the fact that just beyond the wall were others of my kind made me forget my own hurt. I found myself repeating Small's attack on my own tormentors. Lifting a hand to my shoulders I tore away the wires that were the little beast's safe guards. Then a heavy hand went creeping over my head, feeling for the monsters who were my chief tormentors, and I swept them screaming with fear to the ground.

● I heard the treble of their voices as the frightened creatures scurried out of reach. They had no desire to receive the same punishment as those who had belabored Small all these days, but went scrambling down my body, deserting their posts as one man. And suddenly I realized I was free, free!

"Come on!" screamed Small through the blood rage that was upon him. "Down with their wall!" And he started toward the barrier we had so painstakingly helped to rear. He paid no heed to the swarms at our feet, bent upon recapturing us. They were like so many ants who ran screaming out of our way as we plowed through them. Then Small was at the wall, pushing, shoving with his double-fold weight.

Green men ran in all directions, those on the wall, scrambling wildly for the safety of the ground. The wall was staunch, the cement of the Lilliputians as hard as concrete, and though there was an ominous cracking sound as Small's heavy body fell against it it did not give. He drew back, poised his body for a second rush, and when he threw himself against it for a second time I was beside him, adding my weight. Together, the wall and the pair of us went down in a shower of rubble and dust, forming a breech more than a yard and a half wide!

For a moment or two we lay where we had fallen, exhausted and bruised. From amid the settling dust of the ruin we could see the invading army gathered before the mountain-pass astounded, but elated, cheering. Naturally, in the rebellion of the slaves of their enemy they saw their own victory. But there was also rebellion within their own ranks. Realizing that we had actually freed ourselves, they in turn were making a strike for liberty, slapping heavily at the Lilliputians swarming their bodies. Their shoulders and chests were covered with the little red people who had, evidently, intended to utilize them as walking towers to repel the green fighters on the wall. No matter where they slapped with their big hands the captives were sure to deal death, for their own numbers were their undoing and the copper men could not escape them.

I heard Small get to his feet as I started toward the five, but oddly enough he made no move to join me. Instead he struck off at right angles toward the hills on the left, scattering whole regiments of copper men from underfoot as he progressed. They, in turn, discharged clouds of poisoned arrows into his passing body, but they might have been so many gnats as he pushed on, disregarding them, into that welter of broken hills.

At first I was puzzled, then I remembered the wreck of the *Comet*. Small was going after that portable regulator. He had lied when he said it wasn't a regulator, after all; he had known it for what it was at the time, and intended, even then, to get it for himself if the moment presented itself! I was torn between two courses, whether to follow Small or go to the others. But, why, I asked myself, should two go for the machine? Small would bring it, and any other things he found of value to us. My duty lay in helping my fellow men to free themselves of their midget enemy.

Thus, I continued toward the struggling group at the entrance to the mountain defile. All around them were the crushed bodies of their one-time masters, the others

had run from them in panic, clearing a wide space around them. None of the five were a pretty sight with their matted hair, unshaven faces, dirt-encrusted clothes and skin, not to mention the raw sores with which their late captors had inflicted them.

The girl's hair, golden in color, hung loosely around her face in thick curls that had not felt a comb in days. She wore an over-sized man's suit (given her to replace her own flimsy garments at the time of her abduction). In fresh clothing, and after a good scrubbing she would have been pretty, but now she was a rather unhappy appearing specimen of humanity.

Three of the men appeared, more bearded than the fourth; their clothing was more stained, disheveled, literally hanging from them in rags. Two of them were young, between twenty-five and thirty, but the third was older, his gray hair and heavy beard filthy mats. The fourth was a heavy, short man with a livid scar showing through his five day old beard, and I saw him eyeing the remains of my patrol uniform with scowling disfavor. The others had broad grins for me. The girl was apathetic, sunk in deep despair. One of the younger men had his arm about her shoulder, and she half leaned against him for support.

Unmolested as we now were by the Lilliputians, I heard the stories of all five. The girl, of course, was Willa March. There had been two pirates who had kidnapped her, but when their ship fell upon Jupiter one of the pair died, having been electrocuted by broken wires when the ship crashed. The second kidnapper was the man with the scar.

The three others were all that remained of a ten-man scientific expedition that had landed three months previous on Jupiter. Their ship, likewise, was a battered wreck, and had gone up in flames when it landed. Four of them had escaped, and were immediately captured by the Lilliputians; then the other member of their party had died from wounds sustained in the fall of their flyer. Twice, they had managed to escape their jailers, but each time the copper men had recaptured them.

Standing in a huddle we discussed our strange situation. The ship of the kidnappers, it seemed, was not totally wrecked. It had come down in a bog-like swamp, and its fall was cushioned by mud. But for the untoward accident to the second pirate it would have been whole. His fall against the generator had short-circuited the whole system, and neither the girl nor the pirate knew enough to repair it. They had left the flyer after a rude burial of the third member of the party and had crept from the bog hoping to find some means to repair the damage to their ship. Not having any gravity regulators aboard the pirate they were in a bad way when they came upon the cultivated fields of the copper men. At first they were treated as honored guests, but only long enough for the Lilliputians to successfully imprison them.

Then they were coralled with the three who had come before them, and made to do the heavy work of the community to which they were attached.

CHAPTER VI

Revenge!

● As soon as the older man told me his name, I recognized him as one of the Federation's foremost physicists, Brandon Thail. The second man was Timson Bevel, a biologist, while the third was Jerry Treat, their navigator. The last name was oddly familiar to me; then I recalled that Small had spoken of his being lost on Jupiter. He was just the sort of man I expected to be a pal of Jim Small, a sullen-faced individual who had little to say for himself. I did not like his light blue eyes that were set deeply in his head under beetling sandy eyebrows. I guessed immediately that there was bad blood between him and his companions as he stood a little apart from the others. I told him that my companion was someone he should be glad to see, and his face brightened when I mentioned Small's name.

"And," I added, glancing in the direction taken by Small, "he should be back here any moment. He's gone to get a regulator in a wreck back there in the mountains."

At my mention of the regulator everyone in the party brightened. Thail spoke up, "And we'd better be moving out of this territory before our erstwhile jailers recover from their surprise and attempt to take us again. If only we had a gun or two . . . " Of course, when their ship had caught fire they were unable to save anything of value.

As we talked I was aware of movement around us. The two armies at our feet appeared to be settling for the night, their battle forgotten for the while, due to the unexpected developments upon our part. The green men were building tiny fires behind the remainder of their wall, while the others seemed for the most part to have retreated back through the Pass where they also had established a camp. Evidently they intended to continue their fight with the new day, at the same time keeping an eye upon us.

Night was coming rapidly, and yet there was no sign from Small. We had no desire to push through the Lilliputian hordes. I suggested we move over into the hills toward the wreck of the *Comet* to learn what was delaying Small. Lumberingly we essayed to climb the nearest hill, Bevel doing what he could to help the girl, and then we were all on top breathing heavily with the exertion.

Suddenly Treat broke into a cheering cry. He pointed down the valley from the direction of the stone quarries, and in the darkening shadows we saw Small coming toward us. He no longer struggled against the pull of Jupiter, but walked as if on air, and there was a smile on his face. In one arm he carried two gravity-regulator cases, and in the other hand was a rapid-fire gun. At the end of the valley he had paused, and I saw him point his gun toward the ground. There came the rat-tat-tat of his gun fire, and sudden shrieks from the campfires of the Lilliputians, as he fired into their midst. One bullet was enough to explode the body of a Jovian, and it was an ugly sight as four or five bodies flew into the air, their shattered parts spewing in all direction.

The whole camp was aroused. The little men wanted to run, but there stood Small blocking their way. Some scattered up the hillsides, but the majority moved toward the wall, huddling there. Small had had enough for the time being. He had heard Treat's call, and now yelled for him to come down and join him. Treat went slithering and sliding down the hill we had so painfully mounted, the rest of us following more slowly. Treat reached Small several minutes before we did, but as soon as his friend was beside him the big man's ugly voice rang out, "Stand where you are, all of you, if you know what's good for you!" And he was pointing his gun at us. Small had the whip-hand, and he was going to use it!

He seemed to read my mind. "Yah!" he added. "I'm

boss 'round here now, and you guys are going to listen to me, get me?"

I glanced sideways at Brandon Thail whose breath came hissing through his teeth. The scarred pirate said something nasty under his breath, and Timson Bevel let out a grunt of disgust. The girl sighed, and I saw her fingers clutch Bevel's arm. She realized she had more to fear than the rest of us—as if she hadn't been through enough already.

Small spoke in low tones to Treat, then he called out again, "You, with the scar, wanna throw in with us?"

"You bet!" was the answer, and the man, whose name turned out to be Beale, went scrambling awkwardly to join the pair of renegades. I saw Small hand Treat a duplicate of the gun he had gotten from the 354, my gun, for he had been to our ship. That was the reason for his delay. Finding only one gravity-regulator in the wreck of the *Comet*, he had hurried onward to salvage our ship. Treat was also given a regulator, and the third one went to the pirate, but Beale did not get a gun.

With trembling hands the two donned their machines, and Small condescended to help them with the wires and plates. The rest of us could only watch them longingly. All seven of us could not have hoped to wear the regulators, but had I had my way one of the three would have gone to the girl. As it was we had to stand by and watch Treat and Beale cavort mincingly before our eyes, enjoying our envy.

"Well," I called to my late companion-in-arms. "What you going to do with us?"

"Mind your own business. You'll know soon enough. Stay there in the valley."

Shrugging my shoulders I turned to Thail, Bevel and the girl. For the next few moments Small conferred with Treat and Beale, and soon the latter came toward us. Beale stayed beside the four of us while Treat went on through the pass and toward the army encamped in the narrow valley there. Shortly we heard his gun fire. Small stayed beyond the broken wall a few moments, and I could hear him saying a few strange words to the frightened Lilliputians. Evidently, Treat had learned to speak the language of the Jovians and had chosen such words as he needed to make them understand what he wanted of them.

● Now Small came toward us. "Denny Martin, you and that young fellow, go through the Pass and bring back the stuff the copper men will give you. Beale, you stand here in the wall breach and make faces if these blankety-blank mites don't hustle fast enough. We're going to eat, folks!"

That in itself was good news and Bevel and I made no objection to pushing through the defile to where the copper men were camped. We saw that Treat had them moving. A long line of tiny bearers heavily burdened with their small baskets were coming toward us. Their baskets were filled with the inevitable brown pellets, but some carried over their shoulder the bodies of the deer-like creatures of their world. I had not known that the Jovians were meat eaters, but evidently Treat was aware of it, and had seen to it that the Lilliputians should not hold out on us.

Shortly the ground at our feet was piled with tiny baskets and a low pile of meat, a great store of provender for the Lilliputians, but scarcely enough to feed two of our size. Treat got on his knees and brandished his gun, demanding more of the same. Again another line of carriers formed and the piles grew, but still it was not enough. One of the chieftains of the copper men tried to remonstrate against Treat's emptying their camp of food, but his answer was a bullet through his body, his flesh and blood spattering those who had gathered around him, to uphold him.

Treat stalked among them, threatening the rest of the army with his gun and shortly another line of bearers came with food. Treat ordered Bevel and myself to pick up as many baskets as we could carry back to the other valley. And we were not to eat anything under pain of death. I knew Small was trying to show his power over us, by making us carry the stuff through the Pass, since he could just as well ordered the little men to carry it all the way. But Treat's gun was for us as well as the Lilliputians if we were to rebel.

I filled my tunic pockets with deer carcasses, then carefully stacked my left hand with baskets of pellets, taking care that none should spill. Bevel who had somehow managed to keep a cap on his head during the months of his captivity, emptied dozens of baskets into it, and after I had picked up as many more baskets as I could carry we started back for the others while Treat stayed behind to inveigle more food out of the little men.

On the steel plate I had used as my sledge dozens of green men were piling more baskets of food and carcasses. Small was seated on the ground beside his improvised table. He had started a small fire of dead trees and brush and Miss March and Thail were roasting the dressed carcasses of deer. Bevel and I had to make a second trip through the Pass and when we returned Treat came with us.

The pile of pellets was fairly high, and there must have been almost a hundred deer. I am sure that the little people did not dine that night, for with a certainty we had cleaned out their commissary departments.

Treat put Bevel and me to roasting the meat with Miss March and Thail, and as it did not take long to roast the diminutive deer a second pile was rapidly growing upon the sheet. Small invited Treat and Beale to dine with him. We others were ordered not to touch a thing until the three had had all they wanted. We had to watch them thrust grimy hands into the tray of pellets and gulp down the deer. One animal was but a mouthful, and the bones were so small and delicate they could be chewed without troubling to remove them. It was surprising how quickly that pile of food diminished under the inroads of the three renegades.

During our short stay among the green men they had not once given Small or me enough to really fill our stomachs, and it must have been the same with the others, judging by their stringy flesh. But the trio at the dinner table were intent upon stuffing themselves. They each ate about thirty deer apiece, not to mention the innumerable handfuls of pellets they took. Hungrily we waited our turn, and at last we were ordered to "fall to." Brandon suggested we divide the number of deer that were left, but I saw Bevel surreptitiously slip two or three from his share to the pile before Willa March when she reached for a handful of pellets.

By the time all the food was gone the four of us were half satisfied. Looking up, I saw Small leering at me, but I decided then not to allow the big fellow to gloat

over me. He had won the first round, but who could tell what the morrow was going to bring? Wiping the back of my hand over my mouth in lieu of a napkin, I heaved a heavy sigh to indicate that I had dined well.

Water, we all wanted, and Small sent Treat behind the wall to demand that we be supplied. First the green men brought us several skins of the tasteless liquid that seemed to be their sole drink, but Small would not have it. He ordered Treat to have the Lilliputians empty the skins of their contents and bring us water from a lake beyond the stone quarries. Small brought out his collapsible cup, but neither Treat nor Beale had one of them. The green men had to climb upon a rock so as to pour the water from their containers into the cup, and it was slow business. Each of the three had two cups full before Small permitted my cup and that of Thail's filled. I gave my cup to the girl first, then one by one the rest of us had our drink, but Small only permitted us to have one cupful apiece. I was thoroughly disgusted with the man's pettiness, and thought with regret of the many favors I had allowed him in the past.

● Half the night was over, but now we were ordered to get some sleep. Treat was left on guard. I had only slept about an hour when I was awakened by a terrific hubbub from beyond the mountain defile. I raised myself on my elbow to listen better, and when I recognized the bellowing tones of Small's voice above the treble tones of the army camped there, I knew he was up to something. I started to rise, but thought better of it. I certainly didn't want to inject myself into any new devilments of that beast.

The others heard, too, and glancing around we found that Beale and Treat were likewise missing from our group. Now I heard gun-fire from beyond the wall, together with frightened scurryings of the little people. Later, we learned that both armies had decided to decamp during the night as a better part of valor, especially since the situation had developed into such an *impasse* for themselves. But Small had heard, since he had not slept too well after his gigantic dinner, and had gone to investigate. Appearing in the midst of the copper men, while Treat descending among the green, they had ordered them all to stay where they were, murdering many before they convinced them they were not to leave their encampment.

In a few hours we were to learn why Small did not want them to depart. As soon as it was daylight he again ordered food and water for us. Water was plentiful, but there was a scarcity of brown pellets, and no meat at all. Through Treat we learned that both army camps were empty of food, that unless Small permitted the little men to return to their villages they would all go hungry although they had come to war with food for three days if not more . . .

Small laughed, enjoying the situation. "Why feed the dead?" he wanted to know. And now he demonstrated his reason for not permitting the armies to decamp. Treat was sent to the rear of the green army, while Small hurried through the Pass. Our party was ordered to ascend the mountain to the right, to take places facing the valley "to see the show" as Small put it. Beale, armed with a knife, was ordered to "stick" any of us who might attempt escape.

A whistle sounded across the valley, and simultaneously, at either side of the battlefield we heard the rat-tat-tat of the explosive guns. We realized now what Small was up to, what his big show was to be. He was driving his copper men through the Pass while Treat drove the green army toward them. For Small intended to see the end of the battle of the previous day, urging the armies forward with his and Treat's guns!

That all the fight was gone from the Lilliputians was evident when the two bands met. They stood facing each other with spears and bows hanging limply from their hands. Small went into a rage when he saw how matters lay. From his lips came a single word "Daccor!" It was the native word for fight, and he meant business. A salvo of gun-fire accompanied his cry, biting deeply into the copper ranks, while Treat did as much for the green.

The poor little things were to be pitied. They were doomed whatever way you looked at it. Apathetically the foremost warriors raised their bows. They seemed to prefer the poison arrows of their own kind to the terrible explosive bullets of the giants. And as long as they made a pretence of battle Small and Treat withheld their fire. For more than two hours this went on. Each time the armies sought to lay down their arms in common consent the bullets were among them, tearing them to pieces. They were not fighting with their hearts, in it, but fearfully, machine-like.

It was an ugly thing to watch, but the four of us on the hill were powerless to stop it. Once Thail called out to remonstrate with Small. His answer was a bullet over his head, and if we tried to turn our heads away from the slaughter Beale was there with his knife, probing us so that we had to keep heads forward, eyes open. Willa March was moaning in pity for the little people, and the rest of us cursed hotly as a vent to our own emotions. After a while Bevel whispered to me. "If they keep it up long enough, all their bullets will be gone." But I shook my head, for I could see that Small had slung a cartridge belt around his waist, and each cartridge case held a hundred tiny rounds.

At last Small tired of his play. He had revenged himself for his days of thralldom. Thousands of Lilliputians were down. They were fighting at the wall breech, neither gaining nor losing, glancing backward in terror now and then at the pair of giants whose appetite for bloodshed seemed to have no end. Suddenly, however, Small yelled to Treat. "Empty your gun into 'em, and we'll call it a day." And suiting the action to the word he poured what bullets remained in his gun into the ranks of the Jovians with Treat doing the same. Wading through the little people, purposely not looking where he stepped so that many died under his feet, Small came toward us. He was reloading his revolver the while.

"Forward!" he called to us and started from the valley through the defile. Heavily the four of us reared our bulks to our feet, and shambled after him while Treat and Bale came up in the rear. We entered a second wide valley and from there the country changed in aspect, the hills giving way to a flat wide plain which the copper men had cultivated intensively. Far to our right was the gleam of water, a sizable lake, and on this side of it stretched a wide marsh land, about an hour's walk away. In the meadow land were a number of sprawling villages, deserted as we came upon them; the news of our approach having gone ahead of us.

CHAPTER VII

The Plot Begins

● Regardless of the fact that he trod on growing crops Small pushed on, calling for Beale to direct us toward his ship. Our way took us directly through one village, but that did not deter Small from treading upon it, his feet crashing through the flimsy roofs and walls of the houses. The rest of us tried not to step on them since we were sure they were filled with tiny women and children.

Beale had pointed the direction in which his disabled ship lay in the swamp. We found the ship half buried in mud, but except for a dent in its nose it seemed in good shape. It was lying about a hundred yards from firm ground, but a small forest grew on the edge of the boggy ground. Thail, Bevel and I, were put to work tearing up enough trees to form a path to the ship. The three renegades stood by while we toiled, although with their regulators they could have done the job in a third of the time.

Small was first in the ship, and the rest of us followed, glad to feel the habiliments of civilization around us once more. Since there was no electricity for cooking it necessitated building a small fire outside to cook the canned stuffs we found in the ship. There was water in the tanks and soon Willa March under orders from Small had coffee boiling. Never had their been a meal that tasted so good.

The Jovian night was near, and without lights except light torches there seemed nothing else to do but retire for some much needed sleep. Miss March, Thail, Bevel and I were shunted into a dark stateroom in which there were four bunks, and we heard the turn of a key as the door was shut upon us. Filthy though we were we dropped into the bunks. I heard the murmur of the girl's voice mingled with that of Bevel's, then I fell asleep.

A loud pounding on the door of our cell awakened me. The room had no porthole and was still inky black, but I saw the copperish daylight of Jupiter streaming into the corridor from the main chamber of the ship. Small was in there with Treat, the latter ineffectually tinkering with the dead motors. A glance showed me that most of the wiring was burned out, along with a number of used terminals and burnt-out fuses. Several hours should put the electric motors in order, but from the first I doubted that the *Red Arrow*, as the flyer was named, would ever lift itself from Jupiter's broad bosom. As I have said, only the bulldogs and four tenman flyers of the Patrol were capable of carrying enough power to withstand Jupiter's terrific forces.

Of this I said nothing to Small when he demanded if I could repair the damage. If he had forgotten what the silliest tyro should know, I wasn't going to be the one to enlighten him. Repairing the electrical system was another thing, for then the ship's gravity nullifiers could be utilized for the convenience of those not wearing the portable regulators; and there was the radio transmitter to be considered. Although every patrolman carried mechanic's papers, Small knew very little about engines (as I have said before it was only his uncle's influence that had made a patrolman of him), but he knew I was an expert electrician. And I could see that Treat knew but a little more than he. As a transport pilot-navigator it was not required of him to know the workings of the spaceship to which he was assigned.

"Get to work on this system, Denny, and no stalling," was Small's order, but I laughed at him.

"Without a regulator? Don't be a fool. Fingers're too clumsy, and wire working requires delicate handling . . ."

Small seemed less belligerent than the previous day and took no offense at my attitude. He simply called Beale to us, ordering him out of his regulator. Sullenly the pirate unstrapped the plates and handed the machine to me. I accepted the equipment with alacrity. My fingers seemed all thumbs as I flumbed with the plates. The regulator consists of a half a dozen *ganan* plates that are fastened in pairs to the body, one pair for the feet, one pair for the fore-arms and the other pair for the thighs. These are fastened by wires to the small *thurla* battery and generator worn between the shoulder blades. *Ganan*, a Venusian metal, is highly magnetic, and when activated by electricity creates an efficient electro-magnetic field around the wearer of the set. A switch under the arm controls gravity, or entirely shuts if off from the body of the wearer.

My fingers trembled at the switch. Then came the surge of new power as I moved the switch slowly to Earth-normal. The two hundred extra pounds were lifted from me like magic, and once more I could stand perfectly erect and lift my hands normally. Beale watched me dumbly, again a slave to Jupiter. Small gave me no time to enjoy my new freedom.

"No funny business," he averred. "I'm still boss around here, you know," and he shook his gun in my face. "Get to work."

He dropped into a chair where he could keep his gun trained on me, calling out to Beale to arouse the others. Then thinking of something else that should be done he called to Treat to take his place and went outdoors. Shortly Miss March, Thail and Bevel appeared from the sleeping room. The girl was ordered to get some breakfast for us all, and Thail and Bevel were called outside. Soon the odor of wood-smoke mingled with that of coffee came to my nostrils, and I heard thumpings and shufflings from the outer shell of the flyer as under Small's instructions, Thail and Bevel began to dig the ship out of the mud.

Without a trouble finder it wasn't a nice job that faced me. With my fingers I had to trace out every foot of wire and search for burned-out fuses. Spare wires and parts were to be had in the storage room, but a hasty examination showed that the trouble could not be remedied in a few hours after all. Some past electrician had made a faulty job of wiring, and the terrific charge the ship had sustained in Jupiter's clouds had not helped matters. When the falling pirate dropped against the main cable of the induction motor it had finished the job to a turn. To repair the damage I should have to take half the system apart.

Just before breakfast was ready Small came indoors to see how I was getting along. Again he repeated: "Remember, no funny business." I glanced at him with impatience. "I guess I'm just as anxious to get through with this as you are."

"You better be," he rejoined, then he called Treat outside to discuss some further business with him.

● I heard the others gathered around the fire as they ate their breakfast, but I did not go to join them. Soon the girl came in with coffee and warmed beans. Her night's sleep seemed not to do her much good. She was wan, and there were heavy rings under her eyes. It was with effort she lifted the dishes she carried to a bench near me, and I hurriedly took them from her. Her shoulders sagged, she could scarcely move one foot after the other. "Everything is so heavy . . ." she murmured. "Do . . . do you believe we can ever get away from here, Mr. Martin?"

"I hope so, Miss March," I muttered, but I said nothing about how I hoped it would be accomplished.

"You and Mr. Small came to rescue me, didn't you?"

"Yeah, and a fine job we did of it too. Two other patrols were to follow us, but I guess they got their's just as we got ours."

"Will other ships follow us?"

"I hope so, Miss, but if they try to land . . ." I did not finish my thought, but she did not seem to be following me anyway. She sighed, deeply.

"This weight, it's so oppressive . . . you don't feel it in that regulator, do you?" She moved toward me as if she thought that closer proxmity to the field created around me would relieve her somewhat.

"Say," I said, "you stand on my toes, and put your hands on my arms. The field ought to get you that way. Only, I'm afraid you'd feel worse afterwards . . ."

"Oh, just for a moment. Just to feel like myself for a moment, please . . ."

I felt badly for her. I knew what that added pressure meant.

"I do feel it. Oh it's wonderful," she cried, for she had stepped upon the heavy toes of my boots, and her hands were on my arms. A change came over her face, her eyes brightened. She looked pretty now through all that grime.

"I feel as if I'd lived a thousand years since I left Io. You don't mind me doing this for a little while, do you?"

"Of course not. Do it whenever you feel like it. But soon I'll have the ship's nullifiers repaired, and they'll offset Jupiter's pull . . ."

"And I'm keeping you from your breakfast, and your work . . ."

"That's all right, miss. I . . ." But I said no more for suddenly there was a bellow, and glancing toward the ship's lock I saw Small standing there. He was gaping in wonder at the strange spectacle the two of us made. Then he came across the room with long strides, Treat and Beale following at his heels.

"So! That's the way you work, eh? Always were one for the ladies, weren't you, Denny? And say, the little lady's not so bad, at that. I guess I can have a share of her kisses, too?" He had thought we were embracing! However, my arms were around her now, for the girl had in terror flung herself close to me.

Menacingly, Small faced us, then reached out a hand to grab the girl by the wrist and drew her to him. She screamed and my hand darted for Small's. For a moment we glared at each other, both remembering the previous encounter when I had felled him. He hesitated, but did not reliquish his hold upon the girl. Then he smirked and I felt the pressure of Treat's gun against my ribs. "Take your hand from mine, you blankety-blank patrolman," swore Small, "and get back to your job." And he drew the girl closer to him, lifting her bodily from the floor to drown her cries with his rough lips.

Blood boiled against my temples. Had I had the power then, I would have torn that renegade to pieces. A second disturbance came in the form of Timson Bevel. He had heard the girl's cries and now his form was framed by the ship's entrance, but Jupiter's gravity defied him and Small turned in time to see him lumbering toward him. The big man's laugh cut the air like a knife as he stepped out of range so that Treat's gun covered us both. The girl was still in his arms.

"Get back to work, the both of you. I'm man enough to take care of this girl," and he swore some more while the pair of us glared at Treat's gun.

Beale came slithering toward Small. Professional pirate that he was he discerned the opportunity presented by the situation. He drew Small into the ship's corridor, whispering all the while. Small growled at him, then apparently acquiesced. He made no attempt to soften his harsh voice. "Ransom, eh. Well, ransom it'll be when we get away from this damned world. Here girl, give me another kiss, and then go wash your dirty face. And next time I come asking for kisses don't be screaming around here. If you do, I might be forgetting ransom." A pause, and we could hear Miss March scurrying into one of the staterooms. "Ransom, eh," repeated Small. He came back through the control room, hurried through the lock, and was gone.

Treat was grinning at Bevel and me now. "That's that. Well, you fellows, better be getting to work. Jim's a mighty peevish fellow, sometimes." With that he put his gun back in his belt.

Bevel hesitated, as if he wanted to seek Miss March, but Treat stood staring at him, and with drooping shoulders he turned and left the ship. Then we heard the sounds of rude shovels on the outside of the ship. Treat found the place where the pirates had kept their cards and he sat down at a table to a game of solitaire while I returned to the motors, after drinking my coffee that had become rather cool.

Meanwhile Treat left his game and came strolling over to me to learn if he could be of any help. I found he was not such a bad sort after all, but I told him I could do best alone. A new plot was hatching in my head, and even though it would take me twice as long alone I did not want anyone beside myself to know when I was through; particularly our self-styled masters. The pilot looked at me queerly, started to speak, then thought better of it. He was not one to thrust unnecessary work upon himself. He lolled in his chair, half dozing.

● I worked steadily for a dozen hours at a back-breaking job, using a light torch when the day of Jupiter failed me. I heard the others coming and going, but paid them no heed. Miss March stayed in the privacy of her stateroom until Small called her out to prepare the evening meal. She came with head held as high as she could, and hurried out to perform her task. Having found a comb she ran it through her hair, and she tidied her clothing as best she could. Small, Treat and Beale had likewise washed, and shaved, but Thail and Bevel had been denied the facilities of the pirate ship, and the mud in which they had dug all day had not improved their appearance.

After Miss March brought me my dinner I continued working. Bevel and Thail came inside and were locked in their stateroom, the girl in another, while Beale and Treat likewise retired. Small stayed awake, playing cards with himself under the light of a torch, but said not a word to me.

Dawn was in the sky when I realized I needed some rest, and seeing this, Small sent me to bed. He ordered me to take off the portable regulator before I lay down. The return of gravity pressure was terrific, I felt slightly nauseated, but as soon as I climbed into a bunk I was asleep. I could have slept the clock around, but in seven hours Beale, wearing my regulator, ordered me out. I had my revenge when he had to turn the apparatus over to me again.

This was several hours before dawn, and I had to work on an empty stomach until the others were awake. How haggard and wan the others were. Although accustomed to three months of Jupiter's pressure Thail and Bevel appeared near the breaking point. Their faces were gray, the skin under their eyes, pouchy. And the heavy labor Small was forcing upon them wasn't helping them any. Unless they were given some sort of relief soon, they would not have the will-power to struggle against the environment much longer. Bevel, of course, was standing it much better than the older man. I wondered how well I could depend upon him when the moment came for me to spring my plan into action.

Toward noon of that day I put in the last wire, tightened the last terminal, went all over the fuses once more. The motors were again in ship-shape order. I tested the three great *thurla* storage batteries. I switched wires around and suddenly every light in the ship was burning. I turned the switch of the forward dynamo. It flashed into life, a gentle throb filled the ship. It would be ten hours, at least, until enough electricity could be generated for the nullifier plates.

I said nothing, but in a minute or two dragging feet came from the direction of the ship's corridor and Miss March emerged, her face shining. "You've done, it, you've done it!" Beale came from where he had been napping, and Thail and Bevel came stumping into the ship followed by Treat. They were all disappointed when they found the nullifiers weren't working, that is, all but Treat. They nodded blankly when I advised them that it would be many hours before the power could be utilized.

Fifteen minutes later Small came in and wanted to know how long it would be before the ship could be moved. With tongue in my cheek I told him twenty hours at the very least.

He had been out bedeviling the Lilliputians, a sport that I learned he had been indulging in during our stay in the ship, and later a long line of them came bearing dozens of carcasses of deer, while on eight or ten of their sledges fastened together they dragged a large basket of freshly ground meal. The basket was many times larger than anything they owned, and although there were a number of containers from the ship that could have been utilized for the purpose Small had forced them to weave this monster basket under his own supervision. The meal which was made from a grain they cultivated, together with ground dried vegetables, was the ingredient of the brown pellets they had fed us, and which was their staple food. In the ship's galley Miss March set to work preparing man-sized cakes of the meal which were baked slowly in the ship's oven. There were no longer any need of wood-fires for cooking.

Now that I no longer needed the regulator I was again deprived of it, and Beale again donned it with a heart-felt sigh of relief. It was his turn to smirk at me. Early the next morning Treat and Small disappeared, their destination being the 354 from which they decided to get some of Small's personal belongings, and the rest of us were left in charge of Beale and his knife.

Thail and Bevel had cleared most of the mud from around the ship's sides, and they, too, were at leisure. But there was to be no leisure for us under Small's regime. We were ordered to clean out the ship from stern to stem, in preparation for its take-off while Beale, toying with his knife, watched us. His guardianship, however, did not prevent my imparting to the others the salient features of the plot that was soon to come to a head. Since he did not bother to follow us from room to room, as we scrubbed and polished, removing the mud that had been tracked within during our countless walks back and forth, we were free to talk. Thail and Bevel jumped at the plan, but they pointed out one or two of its weak features. We discussed it pro and con in the privacy of one of the staterooms until Beale grew suspicious and came seeking us out.

CHAPTER VIII

The Race Through Space

● As it was close to the time when we were expecting Small and Treat back we were glad to return to the main chamber where on hands and knees we pretended to be doing mop-duty. However, I made a point of staying close to the control desk, in easy reach of the nullifier-plates lever, with one eye ever on the ship's entrance.

Suddenly Miss March came hurrying into the ship to tell us that Small was on the way back, his face dark as a thunder-cloud. It appears that Treat and he had received the 354, only to find its interior gutted with fire. The green men had done it, turning their vengeance upon us in the only manner they knew how, and everything inflammable within the ship had gone up in smoke. In retaliation the pair had fired every village in the vicinity, only to find afterwards that the tiny villagers had already deserted their homes and moved to other parts.

However, Miss March said that only Small was returning now. That sort of spoiled the plot we had so carefully laid, but there was nothing to do now, but to go through with things as they were and hope that Treat could be enmeshed safely on his later return. Bevel had edged over toward Beale where he sat in state on his chair, and Thail was moving toward the lock on his hands and knees. Then we heard Small's boots resound on the metal flooring of the lock, and my hand raised to the control desk as I shot the nullifier lever over, just as Small stepped within the room.

I have to laugh now when I think of the silly expressions on the face of that pair when I activated the plates of the *Red Arrow*. With his regulator set at less than Earth-normal the moment he stepped within the ship Small lost his equilibrium, and went soaring toward the ceiling under the double impetus of the lessened gravity field thus created around him, while Beale, who

made the mistake of jumping up from his chair in his surprise at seeing this happen, likewise rose toward the ceiling, but with more force than that of the renegade patrolman. The noise his head made against the low ceiling resounded throughout the ship.

But it was no laughing matter at that. Though slightly stunned Small managed to keep some of his wits around him and was reaching for the gun in his belt. I made a jump for his hand and pulled him down with me to the floor. He struggled with me, but an uppercut to his chin clouded his mind, and before he could recover again Thail was binding him with wire left over from my repairs on the motor. Beale was floating slowly toward the floor, an inert bundle as light as thistledown. He was still out from the blow on his head when we dragged him to the floor and bound him. More in a spirit of revenge than anything else, since both were our prisoners, we switched their regulators to Jupiter normal, thereby offsetting the nullifying qualities of the ship's plates.

Miss March had been a quiet bystander during this little affair, and it was her cry that warned us all was not well. Like one man we turned in the direction of her shaking finger. There, standing in the doorway leading from the sleeping quarters was none other than Jerry Treat. And he had us covered with his revolver!

All the while we had believed him outdoors, he had actually been aboard the ship! He had come aboard just before Beale called us from our conspiracy in the stateroom at the other end of the flyer, having left Small at the nearest Lilliputian village, where that worthy had lingered to demand further meat tribute.

It was my turn to rave and rant that our fine plans had gone to pot. How easy it would have been to take Treat prisoner in his bunk. He saw the chagrin in our faces and smiled his slow smile. "Sorry, but I'll have to ask you for that gun." He meant Small's gun that I had commandeered. It would have been easy to take a pot-shot at him instead of relinquishing it, but to do so would endanger the lives of the others since Treat's finger was likewise on the trigger. With a sigh I dropped the weapon from my hand as if it burned. The others were ordered to unbind Small and Beale.

As soon as my late subordinate was on his feet he came toward me. A hamlike hand swung toward my head. I ducked it, but his other fist made contact, and I went down like a bag of meal, caught in the small space between generator and control desk.

When I came to, I found myself lying on damp ground feeling unnaturally heavy once more. Rousing myself I laboriously lifted my head to find Thail and Bevel were beside me. Brandon Thail was seated in the mud, his head sunk upon his hands while Bevel with arms hanging to his sides was staring dully at the sky. Where the ship had been, was only a hollow, and Miss March was not in sight!

The brigands had gone off with the girl and the ship, deserting the three of us on Jupiter, leaving us once more at the mercy of the Lilliputians!

I didn't have to be told how Small had dumped the three of us unceremoniously into the mud. I could imagine the gloating as he executed this last revenge, sorry only that his blow had made me miss the fun. It would be something to tell about in the hangouts of Capan on the moons of Saturn, that is, if he should ever manage to reach there.

Neither Thail, Bevel, nor I, felt any too good in the face of things. We knew that as soon as the midget copper men learned we were unarmed, harmless, they would not take long in venting their spleen upon us. Make us pay for all the hurt Small had given them.

Bevel seemed unable to take his eyes from the bit of sky into which the *Red Arrow* had disappeared with the girl he had learned to love during her imprisonment among the Lilliputians. To think that three able-bodied men like ourselves were incapable of protecting one female! Our thoughts were pretty black when Bevel burst into a glad cry and pointed excitedly at the sky.

We all raised our heads and could scarcely believe our eyes. But it was true, the pirates were returning, falling rather, back to their starting place. The strain of the pull against Jupiter's forces was too much for the weak motors, the generator had burnt out. I should have known that that would happen. It was surprising that the ship had been able to take off at all.

● It looked as if the ship would surely crash, only the *thurla* batteries sustained the nullifiers long enough so that the fall was not too rapid. However, the ship dug itself deeply into the mud, spattering us thickly as it came down a few yards from its first berth. Luckily, in falling, the air-lock stayed above the mud. A minute later the lock opened and out piled Beale and Treat.

They paid us no attention, but turned their eyes in the direction from which they had just come. Something in the sky had caught their eye. Small came hurrying out of the ship next, with a pair of binoculars in his hand. He motioned us back into the ship at the point of his gun.

Mystified, we entered to find Miss March staring out of the further window of the control room. When she saw Bevel she rushed into his arms and hysterically tried to tell us all about it. We caught the word "ship" and Thail and I rushed to the porthole. Flying low came a snub-nosed, two-man patrol ship!

It flew slowly, as if searching the terrain below. Although I could not see its name-plate, I knew it was either Patrol ship 355 or 356, a sister ship of the 354, long overdue.

Small came back into the ship. He had a smirking grin on his face. "It's the 356," he told us, "and it's seen us. Thail and Bevel, you stay inside, Denny and Miss March, come with me, and by God, Denny, if you say anything but what I tell you to, you'll get a bullet through your heart. Get me?"

The 356! That meant that Carl Dawson and Jack Blaine were aboard. Both were my chums, and Small was going to force me to lie to them. As we closed the lock behind us Small told me what I was to say.

The Patrol ship was coming at a swifter pace now. It had sighted the pirate ship, the waving arms of Treat and Beale. It landed beside us after some maneuvering, and all unsuspecting Carl and Jack piled out with broad welcoming grins upon their faces. Following them was Corey Morris of the 355, and two bearded strangers in ill-fitting Patrol uniforms. I had no chance to say anything as they crowded around me, pumping my arms. To warn them I could not have made my voice heard above the hubbub of their greetings. Small, they nodded

to, and Corey had eyes only for Willa March. Out of the corner of my eye I saw Treat and Beale edging toward the wide open lock of the ship. Small was propelling the girl forward, slipping around us. I managed to shout the others down. "LOOKOUT! They're taking your ship!" I yelled.

Miss March screamed, and there was the snarl of bullets as Treat and Beale used their guns. Corey went down, and Carl slapped a hand to his thigh as an exploding missive tore at the bone beneath the flesh. None of the patrolmen had guns out, for they hardly expected a reception like this although it's the rule of the Patrol that no man go unarmed at any time.

How I missed being shot I don't know, since I stood in Small's line of fire. Possibly it was due to Miss March's struggles that his aim was poor. The heavy door of the 356 clanged shut. We were all racing toward the bulldog, but the pirates threw in the starting clutch, and we had to jump back from the rocket blasts to save ourselves a cruel burn.

Once again Small had scored, leaving behind, in addition to Thail, Bevel and myself, a dead man, two more, wounded, for one of the strangers had been hit in the arm, and a cursing patrol captain who had lost his ship. Thail and Bevel joined us in the mud while Blaine proceeded to bandage the wounded with the stuff from his pocket emergency-kit. Then we all stumped into the *Red Arrow*, and we heard the stories of the new-comers.

The 355 and 356 had been practically on our heels when we plunged into the clouds of Jupiter, but the Red Spot had started some fireworks just as they arrived at the point where we had dived so they had to move back. Their instruments were knocked out just as ours had been, but they cruised for hours looking for either ourselves or the pirates. Now they knew they had gone in the opposite direction to the one we had taken. They would not have attempted a landing had they not seen, to their astonishment, two giant men surrounded by a crowd of what looked to them to be normal people.

They came down on the outskirts of a native village, that is the 355 landed, or rather crashed, first, since it was impossible for them to take correct bearings. From that accident, the 356 learned its lesson, and eased itself down with nothing more disastrous than some jammed landing gear. The giants turned out to be the survivors of the third Jovian expedition which had landed a week or two following Thail's party, now captive of the Lilliputians, and whom they straightway rescued.

Only one of the crew of the 355 was alive; the other, Bill Tallman, was killed in the crack-up, and now Corey was likewise dead. Taking Corey and the two scientists aboard the 356 they proceeded to search for us and had been cruising ever since with five men crowded into the narrow confines of the bulldog which was intended for two. They were certain we were down, and that they would find us eventually.

In the meanwhile, they had sought to get in touch with the Ionian headquarters. Not sure whether their messages were getting through, they, nevertheless, explained conditions on Jupiter, warning the unwary about the faulty perspective. Then, just an hour before they had sighted the pirate ship, a message had come to them that a Patrol ship was on the way from Io to aid them in their search, a ten-man patrol under the command of Captain Kildaire. On sighting the *Red Arrow* a message had been dispatched immediately to the 238, giving our position.

● In a few words I acquainted the newcomers with the tale of our experiences, of the perfidy of Small, and all joined me in cursing the traitor that he was. Thail had taken the two scientists aside and was discussing his theories concerning the phenomenon of the Red Spot. It was his belief that the core of the Spot was a solid body, possessing a highly magnetic nucleus. It imparted to the atmosphere that copperish red light, disturbing the atmosphere to such a degree that the light formed a jumbled patchwork misleading to the ships that had come under its weird influence.

While these discussions and story-tellings were going on Bevel had wandered around the control room of the *Red Arrow* like a lost soul, gazing out of the portholes, or pacing restlessly back and forth. On hearing that a ship was coming to our rescue he instantly became a man of action. "Possibly, a bonfire would help them find us," he suggested, and straightway rushed outdoors to start a blazing fire in the mud. To his way of thinking Willa March was already rescued.

He was first to sight the 238. It was crossing our line of vision a mile or two distant. At first it did not appear to have seen us, and we all hurried pell-mell out-of-doors to dance up and down beside the bonfire, though we must have presented a ludicrous picture, fighting, as we had to, the power of Jupiter with every awkward motion. The ship had seen us, only it had been deceived by Jupiter's queer lighting effects. Now it came racing toward us at full speed.

Warned by the 356 against trying to land, the big ship nosed toward us slowly, feeling its way; then it rested on its nullifiers a few feet above the ground. The lock opened and eager hands reached down to help us aboard. They had suspected that something was radically wrong when the 356 refused to answer any of their calls, but luckily for us they kept on the course already given them. Never was there a happier rescue. Of course, there is natural rivalry between the crews of the two-man and ten-man ships of the service, but today petty hostilities were forgotten. There was much back-slapping and jocose wise-cracking to cover our real emotions.

But little time could be given to handshakings. Three villains were loose in space. Not only had they gone off again with Miss March, but they had had the temerity to run away with a Patrol ship, adding murder to their slate! Bevel was not the only one impatient to be after them, to leave the unhospitable world of Jupiter behind. Flying parallel to the low ceiling we pushed forward several hundred miles before Kildaire took a chance of plunging inadvertently into the Red Spot. The 238's instruments had gone haywire in their descent, but the crew had since managed to repair them, so it was possible to feel out the activity of that danger area. Slowly we edged into the clouds. We must have cleared the Spot by a large margin since we encountered but one storm, and that was of moderate intensity. The dials acted up, but didn't blink out. Then the clouds dropped away and before our eyes sprang the welcome sight of the flaming orbit that was the sun with Io and Satellite No. I lying just abeam.

Gore, the radio operator, had advised Io of the escape of the renegades as soon as we climbed into the ship. He

repeated the message. Io advised us that it had sighted the 356 through its telescopes, and by its queer antics, and its refusal to answer their signals, the suspicions of Headquarters were aroused. Two bulldogs had taken after it. They gave us the approximate position of the ship, and it was evident that the pirates were heading for the moons of Saturn.

Having had a good start before the Patrols started after them with full speed ahead, it actually looked as if the 356 would escape on the straight away. One by one it was passing the orbits of Jupiter's nine moons, and we were powerless to stop it. Because of the fact that Willa March was aboard, we dared not use our long-range weapons.

And she would have gotten away if it had not been for the Patrol from Satellite IX!

Although it was 15,400,000 miles from the center of Jupiter, Satellite IX was highly treasured by the solar system, despite its remoteness and small size. The fact was that Satellite IX was fabulously rich in radium, and therefore one of the most valuable worlds in the entire Federation. A special Patrol base was maintained there to protect it against the depredations of pirates. Each cargo ship that left the mines had to have its escort.

As soon as it was evident that the 356 was bound for Saturn, two Patrol ships took off from that Satellite which, luckily, lay almost in the path the pirates had taken. Between Satellites No. VII and VIII the renegades grew aware of the fact they were to be trapped, and they changed their course so that they should come around Satellite No. VIII. This occasioned a long curve since the moon lay at right angles to their course. The two ships ahead of us almost shot past, but as we were further behind we were warned in time, and since the angle was not as great for us it was apparent we would arrive in the vicinity of Satellite VIII almost at the same time as the 356!

We did not depend on our own eyes in this great race through space, but upon our vision screens. Our ship showed in the screen as a green dot while the other patrol ships showed as tiny red dots of light. The 356 was lined up in the center of our screen, but suddenly it disappeared from view. The dark bulk of the satellite hid it from view!

● But here came the Patrol ship from Satellite IX, streaking into the view of our portholes converging toward the same point as we. Heliographic flashes flared from the side of the newcomer. It would have been impossible to use the radio transmitters without the pirates in the 356 knowing all that passed between us, but with them out of sight behind the moon we could depend upon the light flashes to keep our communications secret.

Without question Small was expecting us to appear around the side of the satellite. We were certain he had taken a position in space where he could command the moon's entire horizon, and the minute a ship should appear he would have blotted it out with his guns. At a glance it looked like checkmate for us. True, as soon as the bulldogs appeared on the scene we could have made a rush from all four points of the satellite and take the chance of one or two of the four pushing through his barrage, but we had no desire to lose any more men than we could help.

Now as the trailing two-man flyers came up we heliographed the plan that Kildaire and the captain of the Satellite IX patrol ship had devised, and the two little ships plunged toward the moon before us. It would be their business to harrow the pirates by dancing around the moon just out of reach of their guns. Thus, we hoped to hold their attention, to fray their nerves by the antics of the flyers. That the pirates might become weary of that mirthless play had to be taken in account, but we hoped that the two smaller patrols could hold their attention until our two larger ships could strike.

Side by side we darted away from the vicinity of the moon, outward, toward Satellite IX. Of course, the pirates would know of our desertion almost immediately, the dots on their vision plate would tell them, and puzzle them. They would suspect we were up to something, but with the two bulldogs harrowing them, we hoped they would have their hands too full to follow our course after the first half hour. Then, to keep us centered in the cross-hairs of the plates they would have to manipulate it, thus throwing away their chance to watch the bulldogs, and we doubted they would do that.

Slowly the minutes marched by—thirty, forty, forty-one, forty-two, forty-three! Now we were certain that Small and his men were no longer following our flight, and we did a strange thing. We turned at right angles to our present course, describing a wide arc through the blackness of space. Again a long passage of time, and then we knew that we were in direct line with the dark-side of Satellite VIII, a little more than a million miles from the surface.

Our vision plates told us all was well. The bulldogs were still holding the fort along the horizon of the satellite while the 356 lay above the moon's equator, still hoping for a chance to flash one, or both of them, out with their long-distance guns. I could imagine the state of the nerves of the three within that ship. And unless they suspected our presence they would not dare to swing their "Eye" around to learn if anything lay behind them. The road was clear.

Side by side our two ships fell toward the tiny world. We might have been hanging in space for all the motion we showed, but we could see the dark world gradually grow larger, encompass all space before us, blotting out what stars lay in its field. Now we were within a thousand miles, a second more and only 500 miles separated us. We half expected to see the momentary flash of light that would tell us that the renegades had launched a projectile toward us, but they were thoroughly unaware of our presence with their eyes glued on their own screen, waiting, hoping one of the bulldogs would make a false step and come within firing range along the limb of the moon.

Now the blacker bulk of the ship came to view against the dark hue of the moon as it seemed to race upon us. Then there was an earth-shaking jar as the magnetic clamps of our two ships, perfectly timed, made contact with the renegade ship. We had captured the 356!

Not a sound came from the bulldog caught between our sides. Powerless to move, her guns were useless against us; it was just a matter of surrender. We could easily tow the ship between us either to Satellite IX or to Io, but the best policy was to take our prisoners out of the 356 and put her own crew back in her. We

switched our transmitter on, addressed the villains, waited for their answer.

● For a moment there was only silence, then through the transmitter it sounded as if bedlam had been let loose in the 356. We heard a high-pitched scream that was Willa March's voice, then some heavy cursing, more shrieks and gibberings. A shaken voice that I afterwards recognized as belonging to Jerry Treat broke upon our ears. "For God's sake get us out of here! Small's gone raving mad. He's . . . he's killing us all . . ." And there came the sound of gun-fire, then silence, a bullet had plowed through the transmitter.

Bevel, who had heard that awful message, became wild at the thought of the girl in there. We could not act quickly enough for him, but there had to be a moment's delay while we rigged up an air-tunnel between the air-locks of the 238 and the 356. The lock was clamped from the inside, but when we rapped heavily upon the door we heard hands fumbling there. The door burst open and a body fell at our feet.

It was Beale, and never have I see a more horrible sight. His face was a bleeding blot of crimson, his clothes were in rags showing flesh that had been ripped away in ribbons. Bevel shoved past him while we dragged the poor devil out of the way. Willing hands picked him up carried him into the 238.

The sounds from the 356 were terrible, and when we entered it it was in a shambles. In a corner, huddled beside the cracked transmitter was Treat while in a far corner crouched Willa March, her head lolling forward. She was in a dead faint. Her clothing was torn, there was a long scratch down one cheek, and we could see where a barricade of chairs she had piled around herself had been torn down. Bevel must have arrived just as the beast he was fighting had reached the girl.

Small was quite unrecognizable. He looked as if he had been through a mill. Bevel had dug right into him, as they battled in the center of the room like two brutes. There were no rules. Fists, knees, elbows, feet and heads were used to best advantage. They clawed and bit like two beasts out of the jungle, and it appeared that Small was getting the best of it. He had a thumb jammed into Bevel's right eye and he was doing his best to gouge it from the socket while with his other hand he was doing his best to break Bevel's arm. Bevel had a scissors hold about Small's middle, and his hands pressing against his forehead in an attempt to snap the back-bone.

It was a question of which would have won, when suddenly Small slumped over, lifeless. Bevel did not seem to realize that it was over until we dragged him from under the dead-weight body of the ex-patrolman. Later, when we went over Small's dead body we could not understand at first what had happened to him, but Thail brough forth an explanation.

"It's the poison of the Jovians. It must have been working through his blood all this time. It reached his brain and he went insane, then it reached a vital center, killed him. That's how the poison kills. A Lilliputian dies within a few moments of brain-fever, but because of his big size it has taken all this while for the stuff to seep through Small's big body."

When Miss March was aroused from her faint, after she had been carried to the 238, she verified the fact that Small had been acting strangely ever since they had left Jupiter. He had had strange moments when he did not seem to know where he was, what he was doing. He had floored Treat when he had tried to make some suggestion about navigation, and for no reason at all he had turned on Beale and clawed him, until Treat had to come to the rescue. After that he had grown strangely quiet, saying a word to no one, though he sat eyeing the girl in her corner where she squatted, from time to time.

Then, when we captured the ship he had gone wholly mad, attacked Beale, and all but killed him. Then when Treat spoke through the transmitter he had shot and killed the man who had been his friend and turned to Miss March. She had managed to hold him off with a chair within a minute of the opening of the air-lock, but Bevel had come through just as his hands had reached her throat. There were the black and blue prints of his thick fingers on her neck.

We covered the bodies of Treat and Small with sheets and Blaine took over the 356 while its captain, Dawson, because of his bad leg stayed on the 238 as we headed back toward Io. It was a sober crew that faced the trip to Headquarters. Miss March had been given a sedative and lay in one of the sleeping rooms while Bevel sat beside her holding her hand. Thail and the two scientists who had been rescued from Jupiter were in another room discussing the phenomenon of that world, planning, possibly, another expedition there.

I sat thinking about Small and about another Gulliver who had discovered six-inch men, he only had lived to tell this tale. . .

THE END

HOW bright is sunlight? How much brighter than moonlight? What illumination is required to equal sunlight?

If you were out on Pluto at its furthest point of its orbit, where the sun is but a point, do you know that it would be more than a hundred times brighter than full moonlight?

That you may conclude from the article, "Artificial Sunlight," in the current (May) issue of

EVERYDAY SCIENCE AND MECHANICS

which is now on the newsstands. There are many articles on scientific and mechanical inventions; as well as others on the practical use of mechanical skill for money-making purposes.

(Illustration by Paul)

In awe and horror he approached the nearest sleeper. Most startling of all was the terribly emaciated and wasted appearance of the bodies.

THE MAN WHO AWOKE

III—The City of Sleep

By LAURENCE MANNING

● We are carried now deep into the unknown future, in this third installment of the incomparable adventures of Norman Winters. This story is a sequel, in effect, of Mr. Manning's, "City of the Living Dead" published by Wonder Stories several years ago.

We remember that that story aroused a storm of interest and controversy. Many readers wanted to know how the "City" came into being and what its future would be. We do not know yet its future—that will be dealt with in succeeding stories, but Mr. Manning pictures very vividly the revolt against the city in that remote time of 15,000 A. D.

Mr. Manning's series of time stories under the title "The Man Who Awoke" is arousing more and more favorable attention, and becoming one of our most popular features.

● Two young persons leaned against the balustrade at the top of the tallest tower in Niagara City and looked out over the countryside. From where they stood they could see many miles in every direction, for the tower was two thousand feet in height and the city itself was built at some considerable elevation above the surrounding terrain. At their feet stretched the glass pavements and white buildings of the city, terminating in the surrounding white walls—a perfect circle with a radius of two miles. Beyond that was wilderness: unexplored in detail, though generally known from ancient maps prepared in the days when the human race dwelt in individual homes scattered among the fields and woods below.

It was a fair scene and the clear spring air and bright cloudless sky made the prospect more delightful still. Yet on the dark face of the man was set an expression of hopeless sorrow and the young woman's mouth was bent down in a sullen, petulant scowl. Both were dressed in fur-tipped silk of soft hues, according to the custom of the year 15,000 A.D.—the one in knee-length breeches and close-fitting hose and the other in flowing pajama-like trousers and jacket.

The clothing would have seemed uncomfortably thin for February weather in northern New York State ten thousand years before, but the climate had long since changed. With the temperature had also changed the appearance of people: the face of the girl was of the color of old mahogany and eyes and hair were so dark a brown as to look almost black, while the delicately molded hand that rested on the parapet was rich copper above and pale pink in the palm. The man was even darker of skin than she. He shifted restlessly from one foot to the other and his serious young face turned toward his companion.

"And is that your last word, Jalna?"

"Yes, Eric. I think you are being very silly about it all! Why can't you be like anyone else? Why do you have this unnatural desire to live your life haphazardly? Other people are only too glad to have their lives arranged in decency and comfort!"

The man groaned aloud.

"It isn't that! How many times must I explain myself before I realize it is only a waste of breath? There *are* others who feel as I do, or there would be no attendants for the dream-machines the rest of the city sleeps in! And what can be the end of it? Take our own single city, for the rest of the world is about the same, if not worse, how many people are alive . . . er . . . really alive and awake? Just four hundred and thirty by the last count. And these few people must feed themselves and provide electrical energy and control the dream records for more than one million sleepers!"

Jalna shrugged her pretty shoulders.

"What of it? Fifty men can run the automatic machinery of the entire city."

"All very well—for now. But suppose you and I are operated on; next week some other people; then still more and so forth for the next ten years—the time will come when the fifty people are not available . . . and besides . . . "

"What is it *now?*"

"Oh nothing . . . only that there hasn't been one child born in America City for seven months."

There was a moody silence.

"I don't suppose I've changed your mind a particle?"

She shook her head.

"Well, I won't do it—even if you do!"

"Very well, Eric. I shall have a life record made of you and shall have my own life arranged just as though you were my husband—so it really doesn't matter to me. Only . . . of course, I'd rather you were lying beside me during the years and sharing my dreams."

"Jalna! I can't bear it . . . to see you one of those still, wire-meshed forms—never to move again! Muscles wasted away, face fallen in, emaciated, mummified—can't you see how horrible it will be?"

"Nonsense! I shall be climbing mountains, hunting lions in Africa, playing hostess at glittering social functions, eating intimate breakfasts with you . . . *living* with you . . . while I seem to be lying on the couch in the dream palace—where are you going? . . . Eric!"

But Eric had turned abruptly and made off along the

balcony and down through the building to the street. With a choking heart he found his way through the streets and through the gates to the green country outside the city. Head down and hands thrust deep in his pockets he tramped on and on, unseeingly. An hour passed and he was miles away from the city, up the great glass roadway that had been built imperishably by those ancient men who still used the surface of the land to travel over.

At the age of twenty-five meal-times are events not to be lightly ignored. Eric began to feel hungry. He looked about him, puzzled to say just where he was, for he had walked far and blindly. The road stretched before and behind him and the wilderness had crept close to its borders. Not the woods of oak and birch that had once covered this northern country—but the wilderness of 15,000 A. D., after the tropics had crept north.

The glacial remnants of the last ice-age had finally melted (after Greenland had lost its enormous ice-cap and the oceans had risen thirty feet or more) and palms flourished where New York City had once been. Their roots had burst through into the forgotten subways and tropical ferns and mosses covered the broken buildings with green. Eric looked around him at a jungle, dank and dripping even now with recent winter rains. What was the use of going further? He turned and started back and as he did so observed something move in the woods on his right.

The thought rushed into his mind that some wild animal might be there and he realized the folly of his venturing so far from the city on foot. He glanced overhead, but no airship was near enough to signal—indeed only one was visible, far on the eastern horizon. It was a still day and he heard clearly the stealthy rustle of undergrowth. With pounding heart he set off at a run back toward the city—many miles distant.

● He had gone perhaps fifty yards when three gaunt beasts appeared on the glass pavement in front of him and he stopped in a panic. From pictures he had seen he recognized them as wolves—and bigger than he expected. They came on at a lope—not straight toward him, but two on one side of the road and one along the other. He thought swiftly and had decided to try to reach the nearest tree when he heard a human voice behind him!

"Stay in the middle of the road!"

Then he heard footsteps and saw the wolves hesitate and two of them sat back on their haunches, tongues lolling out. There was a sharp "ping!" behind him and one of the wolves leaped three feet straight into the air and turned to bite its haunch fiercely. Then he heard another "ping!" and a third, upon which a second wolf leaped in hurt surprise.

And now his savior stood beside him—an old gray-bearded man in strange leather clothes. But the face! It was that of a man from another world—a lean face with thin arched nose and *white!* Not the smooth, swart features of the men he knew! It was as if a twentieth century American should have met an ancient Babylonian fresh from that city of the Hanging Gardens—something indefinable set this man apart. And then he noticed the long bony fingers ending in upkempt nails. They held a piece of metal ending in a tube. Eric knew this, of course, for a weapon—but such as he had never seen.

"Can you pull back this lever, young man?"

Eric took the air-gun and found the lever required all his young strength. He handed back the re-charged weapon and the old man nodded grimly.

"Now we will go a little closer and give those wolves a shock!"

At fifty feet distance the old man stopped and his finger pulled the trigger. At such a close range the lead bullet penetrated the flesh of a shoulder and made a serious wound. With a howl of pain one beast set off through the woods and a second shot, fortunately striking the eye of another, stretched it dead on the pavement. The third animal slunk out of sight into the forest.

Eric wiped the perspiration from his forehead.

"I owe you my life, old man! What can I do to repay you? What is your name?"

"My name is Winters—Norman Winters. You can more than repay me if you will guide me to the nearest house where I can get food and shelter."

"That I will gladly do, Winters."

"By the Brain!" He almost shouted in amazement. "*You have teeth!*" And he started away a pace or two in alarm.

Winters was nonplussed. "Teeth? Naturally! And what of it?"

"Only animals have teeth!"

"What are you saying! . . . Why, you have none, eh? I hadn't noticed. Men *used* to have teeth you know."

"Oh," said Eric in relieved tones. "You are a throwback, is that it? My friend Thorley has blue eyes, at that. But *teeth* . . . I haven't heard of a case reported in the last ten centuries!"

Winters was cautiously silent.

"How does it happen you sprang so fortunately out of the wilderness?" and he eyed the stranger with distrust and curiosity.

"I might ask in return how it happens that you are here unarmed and on foot!"

Eric laughed and then, remembering why he was here, frowned and sighed.

"I do not want to join the Sleepers and . . . the girl I love does! That is my case in a nutshell, Winters."

The old man gave him a puzzled glance and seemed to be musing upon Eric's words.

"Oh, I dare say it sounds absurd! To me the whole thought of sleeping away one's life has always seemed unpleasant. If dreaming under the machine is as good as living one's actions and life, then what is the use of all human existence? Can you understand me at all—or do you perhaps resent such a radical opinion?"

"Good God!" said the old man very solemnly.

"What's that," said Eric, who had never heard the expression.

"Nothing—nothing! Go on! I understand your attitude very well."

"O-o-oh! Is that it? Are you a . . . deserter?"

"I don't know what you mean by that word."

"No offense intended! After all, you saved my life and I'm not likely to betray you. I mean are you one of the scientist class who deserted the machines? There

have been such, you know and . . . well . . . you were here in the wilderness and all that . . . "

"Young man, mine is a strange story. Do you finish yours and answer my questions and . . . perhaps I will tell you my history."

"Oh . . . all right, then. I was to marry Jalna of our city and she wants a conventional marriage. We were to be operated on and spend our lives together dreaming in the machine. We quarrelled about it and I lost my temper and came for a walk. Went a bit farther than I intended and here I am. That's all."

"Not quite, perhaps. Do I understand that it is the customary way of living that one should be operated on and dream in a machine?"

Eric stared in astonishment. "Why of course!"

"Then how does it come that any are left awake—like yourself?"

"I am of the scientist class—they devote their lives to tending the sleepers. But surely you must know all this!"

"I did not know it—presently you will understand why. I cannot understand what the inducement can be for a man to dream instead of living."

"Oh, as to practical matters, such as pleasures and necessities, the dream machines give one a better life than nature and chance could offer."

● Winters drew himself up and sniffed the clean, crisp air. "Do you mean to tell me a dream machine offers anything to recompense you for giving up this good earth and the sky set with clouds and the green of trees and the glory of sunshine?"

"In the dream machines it is always sunshine and the dreamers draw as deep a breath of good air as we do right now and feast their eyes on as fair a scene! What manner of man *are* you to ask such questions?"

"But how can that be?"

"Very simply. What you see is merely what your eye signals over nerves to your brain, is it not? Well, in the dream machines the eye-nerves are stimulated in precisely the same way. So are the nerves of smell, of taste, of hearing and the entire surface of the body's tactile nerves."

"Go on! How is this done?"

"Oh, it is a surgical operation. The nerve ends are connected to fine wires and the wires lead to the control room from each dreamer. Here a complete set of sensations is sent out from a number of master records and so far as the dreamer is concerned he seems to be living a complete life. Before he enters he determines what sort of thing he wishes to experience. Some live the lives of great explorers and fight wild beasts in the wilderness; others seem to invent great scientific instruments and actually acquire a complete knowledge of any subject they wish; others make trips in rocket ships to Mars or Venus and there go through incredible adventures on those grotesque and almost uninhabitable worlds. Jalna wants to dream a life of ease and homely comfort with occasional adventures and dangers that are so arranged as to result happily—more to enhance the pleasures of peace than for any other reason."

"Good God! Is the world gone mad!"

"I won't go into the dream house with her," Eric went on, "so she is having a record made with my image in it. To all intents and purposes she will marry me whether I am there or not—and will live out her entire life as my wife."

A sudden suspicion passed through Winters' mind that he was being the victim of a jest. For several silent minutes he walked along, glancing at his companion's face from time to time. But his scrutiny left him as puzzled as ever, for never a sadder nor obviously desperate an expression had he seen. Could this impossible story be actually true? What then had come upon a world once more or less sane? If the dream was as good as the reality—what merit remained in action? Though, at that, the thing had a certain plausibility . . .

"I will tell you my story," he said with sudden decision. And as they walked along that ancient glass highway he spoke of his youth thirteen thousand years before and of the world as it was then. He told how he had solved the secret of suspended animation and had built a chamber lead-lined far under the earth and risen after three thousand years to find a world changed beyond recognition. He told of his unpleasant welcome and final escape back to the chamber. He went on to describe his next awakening five thousand years ago and the part he had taken to free the world from the domination of the Machine Brain.

"But I know about that!" exclaimed Eric. "It's in the history records! You are the wilding that saved the world!"

"Yes, and now I awake, after five thousand years, to see the results of that saving! I find what? Great social and scientific strides taken by an enlightened humanity? Pah! I find the most disgusting and vicious custom mankind could imagine set up as convention! If the world sleeps what hope can there be of progress? Without progress what use can there be in living?"

"I don't understand exactly," replied Eric. "Yours is a strange philosophy. And another thing, if you don't mind, where are your scars?"

"My scars?"

"You have slept for thousands of years, you say. Well then, when our sleepers are brought back to waking, as is occasionally done, the scars of their operations show very plainly. You have none."

"My sleep was dreamless—as yours is at night."

"What! By drugs, then?"

Winters nodded. "You find it difficult to believe, I suppose. I assure you that your tale is just as impossible to my ears!"

They came in sight of the city just then and Winters gasped at the sheer white beauty of it. Eric was reminded of his Jalna—so soon to be lost to him forever—and sighed despondently.

"Perhaps," he said, "Perhaps I should give up this active life and enter the dream palace with her, after all!"

"Perhaps you had better take explosives and destroy the dream-machines!"

"What are you saying, old man! Men die for such thoughts!"

"Better death than . . . worse!"

"But life in the palaces is not worse than death, surely!"

"Young man, I have had experience in many periods of this human life and I assure you that there is no period in past history that would not condemn this present custom. Moreover, what of the future? What of the time,

which must surely come, when there are no more scientists to tend the machines? Shall the race perish?"

"Of course, there is that side of it. I've thought of that myself . . . "

"How many sleepers are there in your city?"

"Over a million . . . and only four hundred or so awake to tend them. Oh, I know. I know!"

"And is the rest of the world like this?"

"Yes."

"Then it is almost too late to save the world. Something must be done at once! Don't you see it yourself?"

Eric was silent a moment. "What should be done, then?" he said at last.

"Start a city of the living and leave these dreaming corpses!"

"How horrible! Your words offend every precept and scruple of my training! And yet . . . There is something plausible about the idea. But what would history think of us—deserting our charges!"

"Let me speak for history! She will praise you for a brave action. She will point out that moral cowardice on your part would have doomed the race. Only your desertion can make history possible, for otherwise the race of humans is finished here and now. A few more years of dwindling numbers will spell the end."

"Well, let me think of it awhile. Here we are at the city."

CHAPTER II

The City of Living Dead

● Before them towered the great encircling wall and they passed through the gate and into the broad streets, flanked with such architecture as Winters had never dreamed in his wildest hopes. Here was progress! The entire city had been designed as a unit and at the center rose the huge and graceful fret-work of the dream palace. Its over-all shape was roughly pyramidal, but by blending color and form this was not at once apparent—the eye merely felt a vague symmetry which the reason later could demonstrate. Ten thousand pinnacles lent their frosty points to form the whole and flying buttresses and airy bridges lightened the effect and made the building seem unreal and as unsubstantial as froth.

The entire structure was of colored glass—not transparent, but in opaque pastel shades. Leading up to this breath-taking center, lesser buildings flanked the street and certainly gave the general effect of being part of one theme, though Winters could not at first sight understand how this was done, for no two buildings were similar in design or form.

But one thing impressed itself on his mind more than this beauty. This was the absence of people. In five minutes' walking, they saw one human being cross the road far ahead and disappear again. The city was almost silent and looked dead and deserted, an effect which gave the buildings a cold and lifeless look. There is nothing, Winters thought to himself, sadder than a silent street.

"I shall take you to the apartment of my friends," said Eric. "Four of us live together there and . . . we none of us like the dream-machines!"

He lead the way inside a building of frosty green and up an automatic elevator to a room near the top of the building. All three of his friends were in, as it happened. A tall lean youth with harsh-modelled features, almost black, was introduced as Starfax, a mechanical engineer; a short, rather fat young "darkie" (as Winters thought of him) was Antar, a biologist and surgeon in training; while the third, whose restless blue eyes and nervous hands betrayed the man of action, and whose blond head was set like a rock on the huge bulk of his body, was named Thorley. His face was light bronze in color and he presented a startling—almost freakish—contrast to the others in the room.

"His name is Winters," introduced Eric, and Antar stepped forward with professional interest in his eyes. "He's quite weak and needs rest and food . . . "

"So I can see without your telling me," said he of the goggles, already shouldering his friend aside. "We can hear the rest of your story later. He must have attention at once!" And in five minutes Winters found himself partially unrobed and, weary to the point of collapse, lying on a soft bed of some rubbery composition being told to drink some medicine. Ten minutes later he was fast asleep, whereupon Antar the healer left his patient and rejoined his companions in the other room.

Eric was telling the others what had happened that day and was repeating Winters' strange story. "I'd like to see the motor that stood up five thousand years!" said Starfax doubtfully. "It could be done, I suppose, but . . . "

"But what could he have been thinking of—to sleep dreamlessly all that time. I should have been bored to death!" Thus Thorley of the blond hair.

All three looked toward Antar, who pursed his lips judgematically.

"It could be done," he decided. "We have known about some of the effects of cosmic rays for centuries, but no one seems to have gone into this particular side of it. I can say definitely that he shows symptoms which might result from such an experience—I've seen them myself. On the whole, I rather believe him. He looks quite different from a modern man, too. Has hair growing all over his chest, and, believe it or not, *teeth!*"

There was a general raising of eyebrows and Eric felt impelled to defend the intelligence of his elderly friend, lest his companions think him a mere savage.

"And what did he think of our present civilization?"

Eric grew red and his mouth hardened. "He thinks it rather revolting—wants us all to desert the sleepers and start up life in the wilderness."

Thorley's eyes gleamed eagerly and he made a half gesture of approval, but paused at the general chorus of horror from his other friends. Then Eric spoke bitterly of the almost vanishing birth rate of the city and Thorley thundered bluntly of "foolish conventions that were stifling the human race and curbing all adventure." It was a fair fight, two against two, and the reformers had the advantage of attack. Antar and Starfax were more than half convinced even before Eric broke the news of his quarrel with Jalna. When he told them of her decision to enter the sleep machines there was a solemn silence.

"We really must do something," said Starfax to the begoggled biologist.

"I suppose so," the latter replied. "But what?"

"I've been thinking about this thing for several hours," said Eric. "I believe I know what we could do. In the first place, we have no grudge against the sleepers, have we? We want no harm to come to them. All we really de-

mand is that the world shall not cease living: that there shall continue to be a human race. Well, then, listen to me . . ."

● It was twenty-four hours later when Winters awoke.

Every muscle ached, but his head was clear and he felt a keen hunger which Antar, happening in at his awakening, provided for with an abundant meal. The food was one single piece of creamy substance, weighing about a pound, crisp and delicious to the palate and washed down with a clear warm drink the flavor of which was new to Winters. In some ways it reminded him of ale—but equally so of salted milk. Whatever it was, it was invigorating and refreshing. Winters dressed and asked his physician if he might not now set out to explore the city and study the "customs of the Future," as he put it. It was mid-afternoon and the sun sent slanting rays into the bedroom and through the window he could see it gleaming and reflecting from a million pinnacles and points. As he looked a tiny airship settled slowly and lazily over the buildings and down out of sight.

"That is the afternoon express from across the Atlantic," said Antar, following his gaze. "It is small—for there are few travellers these days."

Winters' face hardened in remembrance of what Eric had hold him. "I must see the dream palace," he said firmly.

Starfax was in the next room and he joined them in the elevator, eager to see what impression five thousand years of progress would have on this ancient of days. As they emerged to the street Thorley's great figure loomed up beside them and the party of four proceeded at a gentle saunter toward the great building that dominated the center of the city.

"Where is Eric today?" asked Winters.

"Busy. We will not see him until sunset."

"He told us about the wolves yesterday," put in the blond giant. "May I see the weapon you used?"

Winters smilingly passed over his air-pistol and Thorley's huge fingers pawed it and turned it to an accompaniment of surprised grunts. He passed it back. "We can do better than that, old man!"

"Oh, as to that, so could we in my day. This pistol, however, requires no chemicals or explosives—that's its only advantage. And it worked, you know!"

But by now they were approaching the portals of the dream-palace and in awed silence Winters viewed its unearthly beauty. The entrance hall occupied half the entire ground floor and was set all about with elaborate counters. But one attendant only was visible.

Starfax had been amusedly following Winters' gaze.

"A thousand years ago this hall was a crowded place of business!"

Winters shuddered.

His three young friends conducted him directly to a bank of automatic elevators and after a few minutes in one they filed forth upon a huge floor space broken occasionally by low Gothic columns. It must have been several acres in extent and in every direction were set thousands of stone tables, and upon each table rested a curious mound of strange texture and shape. Winters' gasp of surprise at the sight was delayed a few moments, for it was not at once apparent that these still motionless mounds were human beings. Over each, like a silver webbing, was a shroud of fine wires—so minute as to be almost invisible singly.

In awe and horror he approached the nearest sleeper and observed that the chest slowly rose and fell—though slightly—and that the wires grew from the face like hairs in a beard. Over the eyes was set a bright cover and the table was pierced in several places to take the bundles of fine wires and lead them out of sight. But most startling of all was the terribly emaciated and wasted appearance of the bodies. The arms were mere skin and bone and the chest was ribbed like a hungry dog's. The faces—what could be seen of them—reminded him of the mummies in the Egyptian room at the Museum.

"That's old Vintalling you are looking at," said Antar. "He was a scientist. Served in biology for forty years and joined the sleepers only six months ago."

He gazed reflectively down at the quiet figure.

"It's a curious thing to look at him now . . . if I remember his record rightly, he imagines himself a young man of twenty having one grand debauch after another. Strange taste for a reputable scientist! I'm really not supposed to tell you, though: Such information is strictly private."

"And how do you know it, then?"

"Oh—all medicals are ex-officio attendants here. There's many a wife lying trustfully beside her husband and dreaming a peaceful domestic life under the firm belief that her husband is doing the same, when he is doing nothing of the sort, but dreaming of whole harems instead!"

"And could he be accused of unfaithfulness in his dreams?"

"But certainly! The law considers the chosen dream even more a voluntary action than some chance happening while awake. But such a question is highly technical and seldom arises. Once a sleeper, always a sleeper, as we say. In fact, the operation unfits a person for any other form of life. The eyes are destroyed and mechanical substitutes are not satisfactory for the waking life."

"And how are they kept alive? Do you feed them?"

"Of course not! A current of negative electricity passes through their bodies and provides all the energy they need—the tissues thus never become acid to the point of fatigue."

Winters had a sudden thought: "How long will they live here?"

"About as long as if they were awake," replied Antar. "The bodies near the last become emaciated to such an extent that . . . well, to me at least they are revolting!" and he shuddered as if at some inner vision.

● And now the four waking ones inspected floor after floor of sleeping figures—rising toward the very top of the dream palace—and after several hours of climbing and inspecting Winters found himself on the top of the same tower that Eric and Jalna had stood on the day before. But now at the end of day the lights were showing softly here and there through the city and the streets showed dusky, although up above where they stood the sun's beams still streamed over pinnacle and point. Winters gazed down and noted how few were the city lights below and thought of the untold hundreds of thousands of quiet forms that lay stretched out in the building beneath his feet.

"How could human beings ever have got started in

such a suicidal course?" he asked. "Who knows the history of the sleep-palace?"

"Eric is the man for that sort of thing. By the way, he should be at our rooms by now. Had we not better start down again?"

The apartment of the four friends was empty when they arrived after traversing the deserted streets. Winters was greatly interested to observe the simple preparations for the evening meal. A compact box with a hopper on the top was set in operation and after ten minutes Antar opened the door below and drew forth a tray full of the crisp white food and a tall beaker of the grey liquor.

"Wonderful! But how is it done?"

Antar lifted the hopper and Winters saw the raw material—a few shovels of sand and gravel!

"Its simplicity is deceptive," he explained. "The sand is broken down in a furnace inside the cabinet by enormous heat and the atoms stripped apart into protons and electrons. Then these are recombined in a controlled stream to form our ambrosia and nectar. The first models of this machine weighed thousands of tons and were very intricate and difficult to operate—not until fairly recently was the process refined to the point where small individual machines were possible."

"Nectar . . . ambrosia . . . why, that is the food of the gods!"

"Exactly! So they were named in your day, weren't they? Or was that before you? They are carefully determined substances and represent perfection in food for the human animal."

They sat down, all four, to the meal which Winters again found delicious. He noticed with interest the rim of pink and white cartilage which served his companions in lieu of teeth. At a glance it was not an obvious change and at a distance quite resembled a set of teeth, but in detail (Winters was circumspect in his observations) he found it vaguely shocking and disturbing. He never got over this feeling. His companions, in turn, eyed his own incisors with frank interest, though without comment.

Just as they were finishing their meal the door opened and Eric entered. His face was flushed with excitement and he greeted them abstractedly, as though obsessed with some overpowering interest.

"Five!" he announced cryptically and his three friends nodded and smiled to each other. Winters was bewildered and glanced from one to the other for enlightenment.

"Five what, may I ask?"

"All in good time," replied Eric. "For the present even you may not know. What have you all been doing today?"

Winters' thoughts reverted to the million silent forms in the dream palace. "We have been seeing the city of the living dead!"

"And what did you think of it?"

"I think that such horrors would never have been believed in my day. Tell me, Eric, how does it happen that the world ever came to adopt such a custom?"

The young man pushed back his chair and stared thoughtfully at the ceiling. "It was natural enough. Human nature has always been wishful for ease and comfort and afraid of change and the unpredictable hammer blows of fate. In the sleep palace each man and woman seems actually to be doing the things he or she most desires. Life there is a regulated thing—if one wishes for it there can be arranged desperate situations and seeming dangers, but always the denouement is happy. If your wish in life be to enjoy it to the utmost, then there is no comparison between sleeping and waking. And this is really the wish of most people—was it not so in your day?"

"True," replied Winters thoughtfully. "But tell me how the process ever came into being."

"It began with the blind. A famous surgeon invented artificial eyes and then a clever playwright found a way to present dramas to the blind upon a sort of recording device. So perfect did the sense of reality about these dramas become that a few people actually had their healthy eyes removed in order to enjoy them. That was the beginning."

"And then?"

"Then the sense of sound followed that of sight. To this was added the senses of smell and taste and finally feeling. So enthusiastic were the disabled over their dream dramas that a group of surgeons and mechanics set up a great theater and offered a dream life to the general public. From time to time a dreamer was operated upon and brought back partially to waking life; but all such were so enthusiastic over the dream life and so eager to be returned to it that the desire was awakened among all peoples on the earth to experience its joys. All this required hundreds of years, but about a thousand years ago the great movement got fully under way. Enormous dream palaces were built in every city and millions of applicants filled their offices and surgeons operated night and day. Since then . . . you have seen," and Eric was silent.

"But has no one ever foretold to you the inevitable result . . . the unavoidable death of the race?"

"Of course! Danforth! About two hundred years ago he led a movement with the avowed object of destroying the dream machines. He attracted quite a following among the scientist class, but was condemned by public vote and killed, together with most of his followers. A few escaped into the wilderness and were hunted down later."

"How typically human!" remarked Winters bitterly.

"It is time you slept, old man," said Antar. "Tomorrow you will be left mostly to yourself, for we all shall be busy. What would you like to do?"

"If there is a book of history covering the past five or ten thousand years I should like very much to see it."

"What is a book? Oh yes! I know. There are a few in the museums. We use sight and sound records instead. That door leads into the theater of this aparement—a small room but quite adequate. I will show you in the morning."

CHAPTER III

The Conspiracy

The next day Winters awoke very tired and with aching bones and was only too glad to be left quietly by himself. Eric led him into a small dark room and seated him in a comfortable chair. A series of numbered knobs set into a wall panel controlled the sight and sound records and Eric turned the knob which controlled the history records. A screen on the wall lit up and Winters gazed, fascinated, at a forest scene taken ten thousand years ago. He saw again the gayly colored foresters and viewed rap-

idly a complete record of the operations by which their physical needs were extracted from forest products.

And now he saw the dance of autumn festival about which he had been told so long ago. He heard the joyous singing of the maidens in their autumn colored costumes and his thoughts went back to that brief and unpleasant adventure. He turned the knob again and again to see new pictures and customs unroll before his eyes. Now he came to the days when the mechanical brain ruled supreme and later to the reconstruction period following its destruction. And then, like a shock of cold water, there appeared his own image and he heard himself addressing the council of black-robed educators! How could this be? A recording machine must have been present in the room without his knowledge! He saw again the countenances of his two friends in that age—five thousand years ago—and mused sadly upon the great gulf of years that separated him from them. So real and vivid was the picture—in full perspective and color—that he could hardly refrain from calling out to them.

By the end of that day Winters realized to the full how lifelike the dreams of the sleepers in the Palace must be. He wondered no more that they should give up the waking life for their mechanically-contrived Paradise. But he saw more clearly than ever how marked the trend was toward the extinction of human life and determined to speak to his young companions anew upon the subject. And that evening, as they all five sat around their meal, he did so.

"Eric, do you remember I spoke about the almost certain result of the dream machines? If I offend your morals and scruples, I am sorry, but I had rather die myself than see the human race so doomed and do nothing to save it. Are there in no part of the world savages or uncivilized men not likely to take up this custom of sacrificing life for a shadow?"

"The human race is one, Winters. It was civilized long ago."

"Then do you four have no regrets that the race should perish?"

The young men looked at each other furtively.

"We may as well tell him," said Thorley.

"All right," said Eric. "For two days we four have been agreed upon the wisdom of your suggestion. We have determined to gather a group of colonists and escape into the wilderness to start life all over again."

"Oh thank God!" cried Winters, his eyes filled with tears. "When do you start? I shall go with you of course!"

"Easy, old man, easy! It is not so simple. The penalty for desertion is death! Yesterday Eric sounded out eight scientists whom he thought might feel as we do. Five of them agreed to come. Three refused, although they were sufficiently sympathetic as to keep the secret faithfully. Today all four of us have been similarly employed among our acquaintances. As a result we have seventeen recruits sworn to secrecy and we have approached no person whom we were not sufficiently sure of to at least preserve the secret."

"But . . . are there any women?"

Antar laughed boisterously. "Never fear, old man! There will be mothers in the new colony. We have five women and twelve men, so far. Each of the new recruits, moreover, has agreed to approach his friends cautiously and we have hopes that the colony can be started within the week!"

"And how will you leave the city?"

"At night—and secretly. We will gather our equipment quietly and at midnight one night we will simply gather at the gate and set off. We will not be missed for half a day and by that time we can be safely hidden. Give us a week or so in the wilderness and we shall have erected defences so that we shall be safe forever."

"By the way, Winters: An attendant at the Palace saw you the other day and asked me today who you were. I said you were a visitor from Australia City and he suggested that you register for confirmation. I had to say that you had been ill and would come to the registry as soon as you recovered. So you will have to be confined to the apartment until we leave."

"A lot I mind! The history records have kept me happy all this day and are good for many another. Are there some pictures of the present world which I may be studying?"

"Of course! The knob marked 7 controls a detailed travelogue."

And now for Winters began a three-day period of utmost interest. In the dark theater he explored each city on the face of the earth and ran amok through the centuries on the history records, taking notes, comparing, exclaiming excitedly over this and that discovery and development. In the evenings the five friends sat about their meal discussing the progress of the great conspiracy. That night there had been reported three new recruits and the following night twenty-two. By the fourth evening the total had reached seventy-two, counting the five of them.

"We have little prospect of gaining any others," said Eric. "Each recruit has approached every friend and acquaintance whom he can trust sufficiently not to betray the desertion. There are 430 adults in the city, not counting the dreamers, and of these we have about one-sixth. Our band counts thirty-one women and forty-one men. Most of us are under thirty years of age. We are ready to start at any time."

"By tomorrow I shall have my medical supplies," put in Antar. "I have to secrete a few things at a time to avoid discovery."

"I am ready now with our weapons," said Thorley. "I am taking nothing but ray tubes. Our seventy-two tubes will be more than a match for any stray citizens who may observe our departure—even supposing them armed, which is not at all likely—and once in the wilderness there is no handier or more efficient weapon against wild beasts."

"I am taking nothing but two small atomic motors and some Maxtil-metal," said Starfax. "With this we can construct our own machines at leisure. I will be ready by tomorrow night, also."

"Then tomorrow we must warn the entire party," said Eric thoughtfully. "We shall meet at the gate at midnight exactly. Let each man speak to his own recruits—as quietly as may be possible."

There was a reflective silence. Antar's spectacled eyes were fixed upon Eric. "Have you told . . . er . . . how about Jalna, Eric?"

"I have said nothing yet. I am sure she will come, if I can only put it properly to her. I will do that tomorrow.

At least," his voice was full of pain, "she will hardly *betray* us!"

There was a further silence, broken by Eric.

"Do you not think, Thorley, that it might be well to take along one or two atomic bombs?"

"No . . . I don't think so. In the first place we sha'n't need them and they are rather heavy. In the second place, they are dangerous things. If one exploded by accident we should have the whole city about our ears in no time."

They parted for the night full of anticipation for the morrow and Winters slept poorly. The next day he was left alone in early morning and tried to concentrate upon his history records, but found his thoughts constantly wandering. Every so often he rose and left the theater to pace restlessly up and down the apartment or stand peering out from the windows down at the silent streets. He had never found time so slow in passing. One final piece of work, however, had to be performed. From his pocket he drew a heavy book with pages of soft sheet gold. In this he transcribed with a sharp metal point brief notes of the past five thousand years of human history:

12000 A. D.—Discovery of the principle of transmutation by Maxtil. Work started to develop this discovery.

12500—Maxtil's invention has revolutionized the world. No farming or manufacturing remains. Men congregate entirely in great cities.

12700—Teeth becoming vestigial—many born without them.

13492—Artificial sight for the blind invented.

13500—Artificial dramas for the blind perfected.

13800—First complete sense synthesis offered to the blind.

14000—Great dream palaces built and largely patronized. This method of life grows steadily in popularity.

14800—Danforth prophesies the doom of the race. He urges the destruction of dream machines. He and his followers are killed.

15000—Date of Winters' awakening. Foundation of a new race of scientists.

And at the end of the last notation, Winters put a question mark and sat wondering what such a thing might mean from the point of view of human evolution. Here was the greatest and most drastic weeding-out of the unfit possible to imagine. From the entire world seventy-two young people were selected to found a new race. What would it be like? Certainly stupidity and insanity would be wiped out completely as human traits! After a hundred generations had evolved from such parents, what utopian dreams of perfection might not be achieved?

It was an excited and nervous group that gathered to an early meal that evening. Everything was ready. There waited only the appointed hour.

Eric ate little and presently rose. "Now I will approach our last recruit," he announced. "Wish me good fortune, for my future happiness depends entirely upon the outcome!"

And he opened the door and went out to the elevators and so to the street. The others sat silently and thoughtfully as he departed.

He walked purposefully through the lighted streets and entered an apartment building half a mile from his own. Jalna was waiting for him in a tower room with roof of clear domed glass through which the quiet stars gleamed frostily and seemed to provide the only light, although concealed bulbs suffused the walls with a subtle glow to eke out this meager illumination.

"Eric, dear! Have you changed your mind?"

"Changed my . . . how impossible! Say rather have *you* changed *yours!*"

The pretty mouth set in a wilful pout to which the determined little chin gave point and meaning.

"The marriage record of you is complete, Eric. Next week I shall be operated upon and set up housekeeping with you."

"With my shadow, you mean!"

"It is the same thing in the dream machines, as you very well know. But if you have not changed your mind why are you here?"

"To say farewell, Jalna. . . . Oh Jalna! Is my image so much more desirable than my true self?"

● "You must stop, Eric! Why persist in this scene?"

She was silent a moment, in evident emotion. "Those arms of yours I will feel about me as I sleep in the Palace just as firmly and just as warmly as I should now. You are a scientist and must know that! Oh Eric, you make it so terribly hard for me—why can't you behave like a normal man? What is there about such natural, ordinary things as the dream machines that you hate them so?"

"Natural! Ordinary! Death is natural, Jalna—yet I do not believe you love death! I am going away, never to return. Out in the wilderness I shall start life all over again, far from these cities full of ugly, breathing corpses. Jalna—*come with me!*"

"How horrible, Eric! You, a *deserter!* You will be killed!"

"I shall not. I am not going alone, Jalna. More than seventy other young men and women from our city are going with me. We shall found a new race in the wilderness and when, years from now, we return to this city and find the streets echoing emptily and the rotting corpses and bleached skeletons in their millions lying in the dream palace we shall wonder what perverse notion ever persuaded you all to perish from the face of the earth. We shall breed strong sons and daughters in our new city in the wilds—Jalna . . . my children will need a mother!"

"Oh Eric! What are you saying? You would desert the dreamers and the city? If everyone did that, the dreamers would die! Would you condemn a million fellow beings to death? Do you forget your oath of faith and trust which you swore when you began your education? Oh horrible, horrible!"

"Jalna, the time has come when something must be done. We youthful ones will do it. Our band represents all but three of the young people in this city. There will be left only old people and—the dreamers. The old people will die and then what is left for the dreamers but to die as well? Whether you approve or not will not change our determination."

With a great groan the young man bent his head to his hands and after a moment rose to his feet and left the room abruptly. She listened until the sound of his footsteps had ceased and then dropped into a chair sobbing.

Presently she sat up and began to think things out. After a few minutes she nodded her head determinedly, making the dark curls about her ears bob with the motion, and left the apartment.

It was about eleven in the evening that a solemn-faced Eric returned to his four anxious friends. One glance at him was enough—no one asked as to the outcome of his evening's talk. Thorley strode over and placed a hand heavily upon his shoulder and Winters sat frowning mightily into space wondering what possible combination of prejudices could account for a young girl's preference.

"Come!" announced Antar. "Let us get ready." Without a word each man donned clothes suitable to his new life—strong trousers and tunics of some dull brown synthetic material—and stuffed his pockets with the treasured items that were to be taken with him. In ten minutes all was ready and Thorley handed each man a ray tube.

"The others will receive theirs at the meeting place, in a street a few hundred feet from the gate. We must get there early and stand guard."

There were no dark streets to skulk through, and Winters was conscious of a vague distrust of these lighted avenues. He had a feeling that their very intentions would be written on their faces for any passerby to see. But there were no passersby. For two miles they traversed the silent blocks of buildings and came at last to a short lane lit by one concealed light set in the face of a building. At the end of it shone the white wall. In the next block he knew the gate waited them—and freedom. With beating hearts they followed Thorley to a doorway and into a huge empty hall. He opened a door in one wall and revealed a closet piled full of material. Everything was as he had left it.

And now the conspirators took their places along the lane hidden in doorways and Winters kept vigil in the meeting hall itself. The minutes ticked by ever so slowly, but presently a group of three young women entered furtively and looked at him in distrust. He pointed to the closet and they opened the door and each equipped herself with a ray tube, with which they all seemed entirely familiar—for true equality of the sexes had long ago been achieved. They were dark and graceful—like civilized savages, Winters thought—and he sighed for the white-faced and golden-haired femininity of his own day.

CHAPTER IV

Conflict!

● Then a group of men arrived and the hall began to fill with young people, talking in low voices and glancing ever and anon at the door as each fresh arrival entered. Winters gazed in great interest at the gathering and reflected that except for Thorley, not one of them would have passed in polite society in the twentieth century. Seen en masse they were more like Morocans or Hindus than "white men". It was a few minutes before the appointed time when Thorley, Starfax, Antar and Eric entered and closed the door.

"We are all here—seventy-two of us," said Eric. "We may as well start!"

Starfax and Thorley stood in the closet and passed out equipment of all sorts, while Eric walked among the recruits making certain that they were equitably loaded.

Finally he held up his hand for attention.

"We will start now," he said quietly. "We must keep all together and make straight for the gate and through it without a pause. There will, of course, be no talking whatsoever, and you must all walk as silently as you can. Your ray tubes are to be held in readiness and you must make up your minds to kill relentlessly any person who observes our departure. It may sound brutal—but remember that the whole future of the human race depends upon it. For that cause, a few deaths are a small sacrifice!"

And cautiously he opened the door and led the way out into the lane. Not a soul was in sight as they came into the curved avenue that paralleled the walls and turned down the street that led to the outer gate. Winters and his four friends walked in the lead and the others followed quietly—five and six abreast. At the gate itself was no light and, noticing this at once, the procession halted undecidedly.

"It *may* have gone out from mechanical causes," whispered Starfax doubtfully, "but if so it would be the first time in years such a thing has happened."

"We must go on—whatever the reason!"

Cautiously they advanced, eyes straining to pierce the gloom at the gate. Not until they were within a hundred feet did anyone take alarm. Then suddenly great lights flooded the scene and from the houses on each side of the street poured a mob of men while a shout from the other end of the street apprised the deserters of the fact that they were hemmed in.

"Charge through them and away!" cried Thorley thunderously.

Ray tubes were snapped on and a few men in the opposing ranks tumbled to the ground, but that was all. A thin hazy mist of red formed between the two parties now and Winters realized that the enemy was using rays as well and that the opposing forces were being dissipated where they met in space. He glanced over his shoulder and observed that the rear guard was similarly engaged with the attackers behind them. For several minutes the three forces stood there separated by the glowing veils of mist. It was an impasse.

Eric and Thorley discussed the problem quietly.

"Half an hour of this and our tubes will be exhausted," said Eric, "while they can obtain fresh supplies as they need them."

"There is only one thing we can do—charge through!"

"Fight with our hands?"

"What else? The ray tubes will counteract themselves and under the cover of the force screen we can charge them and—perhaps—break through."

At a signal the party advanced towards the gate and broke into a run. With a shout they met the defenders and commenced striking and thrusting. Thorley's great bulk bore down all resistance and he got half a dozen yards in advance before he was stopped and only his bull strength enabled him to fight his way back to his companions. After five minutes of furious struggle they felt themselves being forced *back!*

Eric gave a command and they surged back leaving a space between the two parties once more and covering their front with a barrage of rays. The party at the other end of the street had remained in position and was evidently there for the sole purpose of preventing retreat.

But now a movement was observed among the defenders and a great machine was wheeled into the front ranks and three men busied themselves upon it.

"This is the end," said Thorley quietly. "That is the heat ray and at this distance it will wipe us out of existence in a second."

Eric stood with head hung despondently.

"I'm sorry," he said. "We have been betrayed and I'm afraid I know who was responsible!"

"You don't mean . . ."

"Yes, Jalna. Perhaps she thought she would force me after all to enter the sleep machines!"

Then Winters' attention was drawn by the opening of doors in the house beside them. "Look out!" he cried, clutching Eric's arm, and a half-dozen ray tubes swung guardingly in the direction he pointed. Out from the dark opening stepped—Jalna! Eric pressed forward involuntarily and stopped again in bewilderment, for in the girl's arms was a huge, heavy, round thing and she walked toward them with difficulty. Thorley gave a great cry of relief.

"An atomic bomb! Now we are saved—quick, Starfax, Bentall! Help me."

The three ran over and relieved Jalna of her burden and Jalna fell forward into Eric's arms. "I was there all the time . . . just in case . . . you were supposed to be captured and not killed but placed with me in the dream palace," Winters heard her sob. "But when they couldn't capture you alive and brought out the heat-ray I couldn't bear to think . . ."

But Eric stifled her broken words against his shoulder.

"Come, dear," he said. "We will all be killed yet if we are not quick!"

Thorley had set the bomb on its three-pointed stand and glanced over his shoulder at the compact little army to make sure they were ready. "When it explodes we must charge through! It is our last chance!"

He touched a small screw and a hiss of air could be heard an instant. Then the squat, ugly bomb hurtled into the air and down upon the massed defenders of the gate, while the entire force of deserters threw themselves quickly to the ground. There was a blinding flash and a roar that deprived Winters entirely of his hearing for five minutes. He saw bodies hurtle through the air and felt the pavement buckle and heave under him. An entire front of a building tottered forward and fell into the great hole that had been created, almost completely filling it in. Then everyone was scrambling to his feet and the party ran desperately forward, rays trained on the few remaining defenders.

Pounding feet behind them lent speed to the deserters and through the gate they swept, panting, and out into the blackness of the wilderness. After a minute Winters looked back and saw that the pursuit had stopped at the gate. They were free!

It was a weird sensation to walk along the great highway shining faintly blue with reflected starlight and to see the heavy shadows of the woods on either hand without being able to hear the slightest sound, but after a few minutes his ears commenced ringing and presently he was able to hear once more.

Eric led his party for more than a mile along the highway and then he struck into the woods along a faintly defined path which ended presently in a small clearing. A great dark shadow almost filled the clearing and Eric vanished inside it. Presently light shone out from a dozen windows and Winters perceived that it was an airship. The entire party trooped inside, joyous at the success of their undertaking, but sobered by the terrific cost in human lives which had been necessary to achieve it. The cabin was large enough to contain them, even if they were compelled to stand like sardines, and Starfax took the controls and the ship left the earth and set off over the top of the forest in a northerly direction.

"You did not tell me of this," said Winters to Thorley.

"No. We were not sure until this morning that we would be able to steal the airship and besides—the fewer in the secret the better chance of its being kept."

"Are we all here, or are any wounded?" called out Antar.

There was a general counting of heads. Sharp exclamations were heard throughout the crowded cabin and a woman's voice commenced to cry out "Steuben! Steuben!" piercingly, but without answer. Seven of the original seventy-two were missing. They had evidently been killed or disabled when the atomic bomb exploded, for none had been observed to fall during the fight. Steuben had been the husband of one of the party and the other women grouped around his widow and offered what comfort and sympathy they could.

And now began the voyage to their new abode. Starfax turned the ship westerly and Winters, peering over his shoulder, observed on a map that the destination was marked by a circle near the western end of Lake Superior. In an hour and a half they commenced to descend and landed quietly in an open space surrounded by trees and shrubs. Everyone was glad to get out and stretch on the firm ground in comfort, for the weather was warm and the night a fine one. Winters fell instantly asleep.

When he awoke the sun was high in the sky and he gazed in amazement around upon a scene of furious activity. Starfax had his two atomic machines at work turning out steel girders and parts for a huge structure of some sort, the raw material for which was furnished by two dozen men shovelling earth and gravel into the hoppers.

By nightfall that day the large atomic machine was completed and the night was spent as before in the open, although the airship would have provided shelter had it rained.

The next day Winters watched the mechanical science of the one hundred and fiftieth century at work full blast. One party busied itself about the two small machines, evidently turning out parts for a second large one. But the rest of the colony was engaged in constructing the walls of their new city. The machine stood perhaps twenty feet high and was square and solid. It moved on treads like a tank of ancient times and a belt of scoops tore up earth and stone from in front of it which came out at the rear in the form of metal boxes, which under the direction of Thorley were placed to form an ever heightening wall. By nightfall men were at work upon a roof of sheet metal. The entire structure enclosed the airship and perhaps two acres in total area. The next night saw it finished and a great sloping peak being erected on the roof "to ward off any possible atomic bombs," Starfax explained.

The third day of their escape, however, Winters' recent exertions took their toll of him, and Antar, after a careful examination, announced that he would have to rest quietly for some days and that he would have to put him to sleep. Winters drained a cup of bitter tasting medicine and sank into unconsciousness.

Winters' physical condition was more serious than he had suspected and so it happened that he missed entirely the construction of the fortified city in the wilderness.

Antar had set to work to make a delicate atomic production machine, capable of those refinements of chemical content in the output, necessary to create synthetic medicine and while working upon this apparatus had kept Winters drugged under the principle that he who sleeps is his own doctor. It was a full week before he could produce the medicines he needed, and three days after careful injections Winters' eyes opened upon a transformed world.

Where there had been wilderness now stood a compact city some quarter of a mile in diameter. It was not beautiful, save insofar as sheer utility lends beauty, but it was a very marvel of good design. A protecting wall of some glass-like substance ran inside the layer of metal. The metal could be given an enormous electric charge sufficient to repel any approaching missile. The city was domed in a great peak of heavy glass calculated to avert any blow from bombs or shells. Great squat heat-ray machines were mounted in the wall to keep all attackers at a distance and Carfax and Thorley had together invented a sort of machine-gun throwing small atomic bombs at high speeds.

The walls were not high—perhaps twelve feet—and all around them had been planted quick-growing trees which Antar had fertilized with artificial chemicals and already from a little distance, it was difficult to determine whether a city hid behind what appeared a patch of woods.

The city was laid out in concentric circles. First the buildings; then the avenues and a second circle of buildings; then another avenue and a second circle of buildings. The center was vacant and planted with shade trees for the present so as to make a pleasant little park.

"But how long did you say I had slept?" demanded Winters as his four young friends led him into this open space upon the day of his awakening.

"Ten days."

"Impossible! How could you have done this in such a short time?"

"Ha, ha! The actual building of the city took three days," replied Eric. "What took so long was the labor of constructing the necessary machines."

As they stood there a woman approached. It was Jalna. On her face was an expression the others had never seen there.

"Oh Eric! I am so happy here! You know, I used to fear the things which mere chance might bring to pass. Well, I find myself actually looking forward to something exciting happening now! Oh, how are you, Winters? I am glad you are up and around again."

And she placed her head against Eric's shoulder and placed his arm around her shoulder as so many wives had done before and would again, now that the race had laid a new foundation for its existence.

"After all your travels through the ages, you must be glad to settle down at last and live comfortably among friends!"

"I am not sure . . . It is a thrilling adventure, of course, and I am tremendously interested in the outcome of it. But is it not pretty certain, now that the city is built and fortified, that you will succeed?"

"Yes," replied Thorley, straightening his huge shoulders. "I think we can feel safe enough now."

"Then . . . I should like to go on and find out what becomes of your descendants . . . I cannot bear the thought of a dull and pleasant life here year after year . . . besides . . ."

"Besides what, you incorrigible one?" laughed Eric.

"I have not many years left to live. If I spend those years a month at a time through the centuries I shall see more. . . learn more. I have still to find out what goal lies at the end of this human struggle."

"I see your point, Winters," said Thorley with a shudder, "but for myself I want no more sleep than the night brings! We have had enough of sleep, we people of this age!" And the others voiced their agreement.

"You can not stand the physical strain for another week or two," put in Antar. "And when you do go into your long sleep I will prepare drugs and stimulants for you."

"And I will build your lead chamber under the ground," offered Thorley.

"And I will undertake to construct an atomic motor that will last you five thousand years," said Starfax.

"You are all very good. What will you and Jalna do for me, Eric?"

Eric turned to his wife, and smiled fondly.

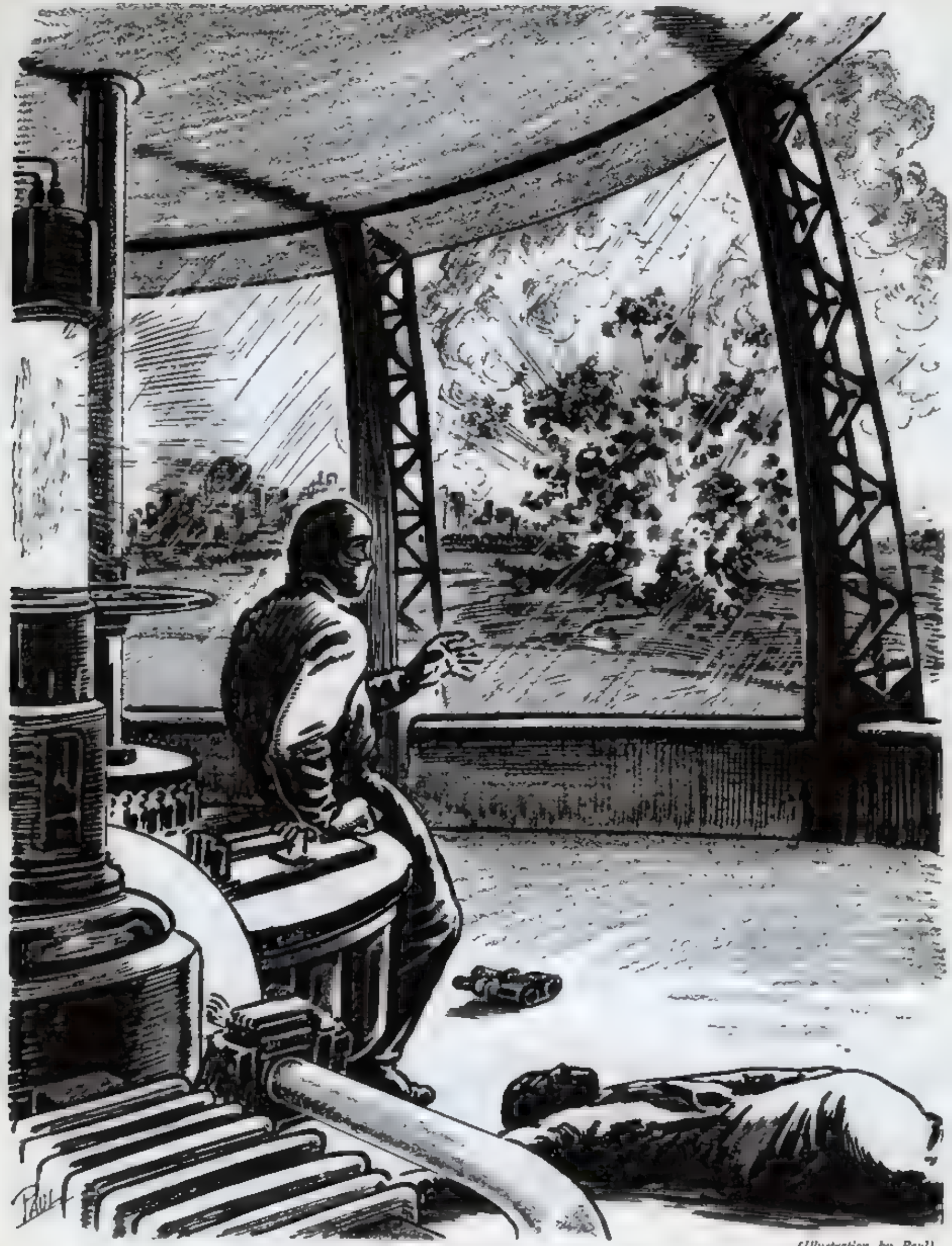
"We will do what we can to render your last days here as pleasant as possible, old man," said Jalna softly. And of the four gifts Winters was not sure but that the last was the most valuable.

It was three weeks later that preparations were complete. The entrance to his chamber had been dug beneath the floor of a bedroom in Eric's apartment and none except the five knew its exact location, for the labor had been done by atomic machines—busy little scoops that tore away the earth and turned it into lead for the lining and (at the last) into air that left no trace of the detritus of excavation. So one evening after the meal, partaken of by the six friends together, Winters quietly rose and went to the door, looking up at the sky shining through the clear glass dome that shut in the city.

He was no astronomer, but he could sense a slight unfamiliarity in the constellations. Down on the horizon appeared stars he did not ever remember seeing in his youth thirteen thousand years before. And overhead were some slight changes, though he could not exactly place them. Ah! There was one! Sirius was no longer where he had been accustomed to find it. Doubtless there were others, and would be still more when he next gazed at the heavens. He sighed deeply and returned to the room to bid them all farewell. The five men shook hands solemnly, for he had taught them this ancient gesture of friendship, and Jalna cried a little.

Then with a tiny electric torch in his hand he descended the stone steps and shut the door and placed the heavy alo-steel bar in its sockets. Even as he did so he could hear the atomic machine at work above, with its whirring roar and grunt, laying the metal slab and the flooring over the tunnel to shut him off from the world above—perhaps forever.

THE END



(Illustration by Paul)

Miles away the ground split from a center in radiating crevasses. I saw men far beyond it halt in dismay and turn back. A violent shaking of the ground sent me to the floor.

THE THIRD VIBRATOR

By JOHN BEYNON HARRIS

Empires have risen and fallen; and behind their fates often stand the grim shadows of warlike men who used them as pawns in their ambitions.

International war is today facing every large nation and war offices delve feverishly into their archives for new war weapons with which to make an easy conquest of their enemies.

Yet we know that a weapon of destruction might become as great a terror to those who use it, as to those whom it is used against. But war-mad men will not listen to this argument; they must be shown. How this can be done, Mr. Harris illustrates in this short but intensely interesting story of three catastrophic wars.

Diana French followed a uniformed attendant across a well-kept lawn. Her manner was a blend of eagerness and reluctance, the former but little stronger than the temptation to retreat. The attendant stopped beside a clump of bushes. He pointed ahead.

"Mr. Hixton is over there, madam."

Diana braced herself and walked with slow deliberation towards a grey-suited figure sagging in a garden chair. She could see that he was lost in reverie, his hands hanging listlessly, his eyes fixed sightlessly on the trees before him.

What twisted thoughts, she wondered, were playing in his brain? A spasm of panic made her falter. Suppose he were dangerous? Overwork, they had told her—overwork was not the kind of madness which made people dangerous. She pulled herself together again. There could be no danger or they would not let her see him alone. She walked on with a firmer step. Three feet behind his chair she stopped and spoke.

"David."

It was little more than a whisper, but the man stiffened and turned.

"Diana!" he cried. He rose and took a step towards her, stretching out both hands. She advanced and took them in hers while she searched his face. She had not known what to expect save that he would seem different; but, except for lines of worry, he did not. Her eyes looked deep into his, searching the mind behind them, looking for evidence of what they had told her about him. But there was nothing alien, nothing to show a disordered mind. Her unconscious stiffness relaxed. She came closer and put her arms about his neck.

She tried to speak and failed. The tears she had restrained flooded out.

"They told me," she said later. "They told me that you—that you—"

"That I was mad?"

She nodded. "That's what they meant me to think. They said that you had collapsed—had a breakdown through overwork. One of your assistants had found you smashing up your workshop with a sledgehammer, and they'd had to—send you here."

"Yes, that's true—but, unfortunately, I had hardly begun to smash things."

"You—?"

"Yes, but it wasn't madness, my dear. It was a blinding flash of sanity. Another minute and I'd have finished it."

"Finished what?"

"Smashing that vibrator. Crushing it into little bits beyond all hope of reconstruction. Alan was too quick. I don't blame him for stopping me. He didn't know—it must have looked like madness."

"But, David, why? Why, after all the years of work, should you want to smash it?

"Because I suddenly knew that if I didn't smash it, it would smash us."

"Explain, David. I don't understand. I know the vibrator was a weapon, but—"

"Weapon, my dear? Would you call a volcano, an earthquake or a hurricane, a weapon? The vibrator is more than all of these. Its power is unthinkable. It may mean the end of everything, and I—I have let it loose upon the Earth for the third time."

A worried, doubtful look crept into Diana's eyes. She rested a hand on his sleeve, and gazed closely at him.

"Darling, you must explain—I think you owe it to me. Why did you suddenly want to break up the work of years—an invention which put you at the head of your profession? And what do you mean by 'the third time'?"

He looked at her for some moments without speaking At last he came to a decision.

"I'll tell you. I haven't told anyone else yet—they'd take it as a part of my 'madness'."

It was a week ago today, he began. Old Fosdyke was making a speech of thanks on behalf of the War Department. It was not an official affair. There were only seven of us round the table, but still it was not entirely informal.

Fosdyke was rolling out phrases in that admirable way of his when the feeling suddenly came over me that I had heard it all before. You know that sensation of unplaceable familiarity, everybody knows it. You come suddenly upon a situation or even a view which you seem to have seen somewhere, somehow, in the past. The psychologists have an explanation, of course—they always

have. But this time the sensation I felt was stronger than ever before.

"This is more than a mere weapon," Fossdyke was saying. "It is no adaptation, no improvement of existing methods. It is a breakaway. It is the dream of the scientists come true—it is the death ray." He paused.

"And yet," he added, "even as the airplane when it came was unlike the early dreams of flying machines, so Mr. Hixton's vibrator is unlike what we expected. In our more fanciful moments we pictured, if we gave it any thought at all, something akin to an enormous searchlight sweeping like a vast scythe in a destructive arc. Mr. Hixton's invention is, it is true, a directable force, but it is an invisible stream of vibrations which disrupts the ordered vibrations of matter and produces complete disorganization. Without doubt the potentialities of the discovery are greater than we can now conceive. But I tell you now that Mr. Hixton has achieved what no man in the history of the world has accomplished before. He has ended war . . .

"With a weapon such as this, war will be impossible. Its colossal power will make a mockery of all our present arms. From this day no nation will dare to make use of force . . ."

I heard Fossdyke's voice booming on, but it seemed to be coming from further away. My eyelids became unaccountably heavy. Not with normal sleepiness, but rather as though a weight were pressing them down. I struggled against the sensation as one does against an anaesthetic—and to as little purpose. Fossdyke's booming receded further and further as my lids dropped lower. By the time they were shut, I seemed to be alone. All external sounds had ceased. I felt that there was nothing about me but a dark, silent void through which I was falling, falling.

How long that sensation continued, I cannot say. There was no means of measuring. I only know that it ended as inexplicably as it had begun. I was aware again of a voice:

"—And thus the supremacy of our country was made absolute. While we have this weapon no race on earth can face us."

I opened my eyes in bewilderment. The voice was not Fossdyke's; the language it spoke was not English, yet I understood it. I saw a large hall. I was seated on the foremost of a series of semi-circular benches all of which were crowded with men and women dressed in gleaming material not unlike silk. Before us, on a throne-like, high-backed chair sat the speaker.

I was bemused for no more than a few seconds. The memory of Fossdyke began to fade away. I was no longer David Hixton of the twentieth century. I was Kis-Tan, citizen of the mighty empire of Lemuria. The tall, serious faced speaker whom I knew now for Alhui, chief councillor of the empire, continued:

"But it is a two-edged weapon as it exists at present. Therefore I must lay before you a two-fold proposal. First, that all vibrators at present in existence shall be destroyed forthwith. And, second, that Kis-Tan shall be granted funds to begin experiments with a view to finding a new type of vibrator, far less drastic in its operation. If, and when, this is accomplished, the new machines shall be retained within Lemuria where they shall be used only in the event of a dire crisis, and then with the utmost circumspection."

The First Destruction

● A murmur of dissent rose from the two hundred or so persons on the benches. Lemuria, already powerful had been made invincible by the vibrator. To attempt its suppression was, to most minds, like flying in the face of the Sun. The gift of Ra to his chosen people could not thus be spurned. A number of heads was turned in my direction to see how I would take this proposal against my invention. I did my best to make my expression unreadable. Alhui gazed on us calmly, measuring the temper of the council. At length his eyes came to rest upon me.

"I call first upon Kis-Tan to give evidence," he said.

I rose and bowed to the golden image of the Sun which blazed on the wall behind him.

"In the sight of Ra, I speak truth," I said.

"Tell us," commanded Alhui, "of the trial of your vibrator."

I turned to face the council, and addressed them.

"When the first vibrator was constructed, I was working to a great extent in the dark. I knew that it was immensely powerful, but I was unable to measure that power. The council, as you will remember, stipulated that the trial of my machine must take place outside the confines of the Lemurian Empire.

"My assistants and I understood and approved of this caution. We travelled a great distance to the southwest until we came upon a sparsely populated country, several thousands of miles from here. The location appeared to be ideal for our purpose. The few men we saw were blacks of a very backward type, and the animals also were primitive, being for the most part marsupials. We decided that any damage we might do would matter but little in such a country. Accordingly we set up the vibrator in an immense plain.

"After we had put on our protective clothing, I myself, threw over the switch.

"The result surpassed even my expectations. There was no visible emanation, no ray, nor was there any sound: nothing to show that there was now in action a vibration which could throw out of phase that other vibration which we call 'life'. The grass, the leaves, even the trees themselves seemed to wither while we watched. Every animal died where it stood. Every insect dropped. We were all overawed—perhaps a little afraid . . .

"Soon, however, our enthusiasm reasserted itself. We conducted a number of tests to prove range, directability, etc., and then moved on to fresh ground for further tests."

As I paused Alhui asked:

"You have seen those experimental grounds since then?"

"I have."

"Tell the council of their condition."

"They were barren. There was nothing but lifeless desert sand."

I sat down and there arose a murmur which Alhui quickly quelled.

"I call upon Aphrus, missionary of Ra, in the land of Aegypt."

● A tall, shaven-headed man, wearing a robe much worked with gold thread arose, saluted the sign of Ra, and began to speak in a powerful, resonant voice.

"In Aegypt, where the people are being weaned from dark superstition and shown the glory of Ra, the Lord of Life, we, priests and converts, worked amid great dangers. When we heard of the vibrator we petitioned that one should be sent us for our protection. We were doing all in our power to ensure peace, but we must be prepared for war.

"The inevitable day came when the heathen essayed to contest the mightiness of Ra. From the south and the west, black men and brown, they marched upon us. We sent messengers to warn them that we were invincible. They killed our messengers. In their hundreds and thousands they advanced—we had no choice but to use the vibrator.

"As the switch was pulled over they dropped in their legions. In men and horses alike that vibration which we call life, given of Ra, was quenched. The very trees and flowers drooped and died. The heathen covered the ground with their innumerable bodies.

"Ra blazed down in great anger on their corpses, and they were corrupted. But Ra was displeased also with his servants. From the field a stench arose and floated over all Aegypt, and with it came plague . . .

"Out of every four men, three died. When it became safe, we went out to see the battlefield. It had been a fruitful, pleasant land. Now we found it scorched and sandy beneath the pitiless eye of Ra—an arid desert."

He finished and walked back to his seat. Calmly Alhui called the next witness.

"Yoshin, of the Temple of Knowledge."

Yoshin stood up. He was a bent, bearded man of great age and spoke in a voice scarcely audible.

"In our mountain fastnesses we have for centuries pursued pure knowledge. We have been but little molested for we have not the things which most men value. But more lately we have been disturbed. The brown men to the southwest caused us no anxiety for they are content to stay behind the mountain barriers, but the yellow race of slant-eyed men to the east and north-east became dangerous. Lemuria provided us with vibrators. Many of our members reverted temporarily to a state of less enlightenment. They grew vengeful and pursued our attackers far to the north-east. As a monument to their folly and their madness there is now a great desert beyond our northern mountains."

The next witness was called. He wore a military uniform, and his speech was brief and concise.

"To protect the communications on the west between ourselves and the new colony of Atlantis, I was given a vibrator. In repulsing continual attacks by red-skinned men from the north, several deserts have been created."

He retired and Alhui called another witness, and then another. Endlessly it seemed to go on, this tale of deserts large and small created by my machine. And as the recital continued, the temper of the council changed. At last Alhui disposed of the final witness and called upon me again.

"You agree with the council's proposal, Kis-tan?"

"I do."

"And you will do all in your power to construct a modified form of the vibrator?"

"It may not be possible, but I will do my best."

There was a break here in my vision, projected memory, or whatever mental process I was undergoing. Some months (I cannot say how many), had passed, and I was in my laboratory with my assistants. We had worked hard, and now fancied we had met with success. A fair trial of the new machine we had produced would have been too dangerous, but for a preliminary test to ensure that the working parts functioned properly, we had constructed a special chamber of stone slabs, lined with insulating material. Into this we moved the machine with infinite care, and together with it we enclosed growing plants and a few small animals.

I pulled over the switch.

We intended to give the equivalent of one minute's exposure to the vibrations. Half the time had passed, when the catastrophe came without warning.

The stone chamber collapsed. Its walls did not merely fall, they seemed to dissolve abruptly into a fine dust. I had a brief glimpse of the machine still standing; then some titanic force gripped and seemed to wrench me apart . . .

Back to Atlantis

● Again that sensation of falling timelessly through a silent, swirling blackness until suddenly I was aware that I stood upon a solid floor.

Before me was a tall window and I looked down through it on a scene of bustling activity. Immediately below ran broad, busy streets and beyond them lay the quaysides of a harbor. Ships were being unloaded there by swarms of hurrying men. Still further off ships with sails of red, purple or russet, looking like huge butterflies, were sliding over a blue sea; homeward bound with a small, joyous white wave curling from the bows. My gaze followed one as it rounded the headland and passed the harbor pylons. I saw the tumult on deck and the lowering of the vivid scarlet sails, embroidered with the golden emblem of Ra. The wealth of the world was pouring into Zapetl, the greatest port in Atlantis.

I knew that I was Xtan, a person of rank, as was shown by the feathered headdress which I now held in the crook of my left arm. A glittering, embroidered tunic clad me to the knees, while from my shoulders hung a cloak of gorgeous featherwork.

Behind me in the silent room stood two guards flanking a pair of doors which led to inner apartments. They were rigid as statues of wood and gold; not a movement, not a creaking of their military harness revealed them for human beings. Even when, with a sudden click, the doors flew wide open, their eyelids did not so much as flicker. Without hesitation I crossed the room, and as I crossed the threshold the doors slid together once more and refastened themselves.

The room I now entered seemed austere to my Atlantean taste. There was comfort in its chairs and couches, but unnecessary decorations had been discarded. There were none of the prized featherwork pictures essential to any house of social standing, nor were the usual intricate screens visible, while the lighting arrangements instead of providing an excuse for an orgy of gold-work were carefully concealed.

I approached the far corner and saluted a figure which sat sunken in a chair.

"You commanded me, Zacta, and I have come," I said.

Zacta raised his white-haired head and searched my face with a troubled look. He was a very old man; so old

that none knew his true age. Even the oldest could remember but little change in him, and in the popular mind he was all but immortal. The wisdom which the phenomenal man had amassed his longevity had guided Atlantis through many a crisis until he had come to be regarded as a mixture of oracle and demigod. There was even a growing superstition that when Zacta should die, Atlantis would fall.

"Yes, Xtan, I sent for you," he said, still studying my face. He put up a hand and stroked his beard, pausing so long that I became uneasy. At last he said:

"I have been told that you are experimenting with vibrations—with a view to finding a new weapon. Is this true?"

I nodded. "It is perfectly true—and I have been more successful than I had hoped."

Zacta shook his head slowly. "I have always feared this—that vibration should have remained unknown."

"But you have taught—"

"I have taught you to seek truth, and science is a form of truth. My quarrel is not with your discovery, but with your publication of it. There are some forms of knowledge which it is unwise to spread; men are not yet ready to handle them. They cannot control themselves; how then should they be able to control mighty weapons? This knowledge of yours must be suppressed—it is a danger, not a blessing."

"But—"

● Zacta lifted his hand. "It must be forgotten. I have given the matter my deep consideration and I know that it may be perilous for Atlantis—for the world."

I grew angry. My researches had taken considerable time and money. My invention acclaimed by the military authorities. But if this old dotard were against me, all my work would go for nothing. I knew only too well his power and influence. Scarcely a soul in all Atlantis would dare to disagree with Zacta. It was plain that the old man was losing his grip. Could he not see that my invention meant the dream of ages come true? The mastery of the world.

He saw my rising temper with increasing displeasure.

"You are not even a pioneer," he said coldly. "There was a weapon such as yours in Lemuria."

"I am not interested in mythology," I answered contemptuously.

"Lemuria is no myth. It existed as a great empire, greater than Atlantis is today. It discovered a form of vibrator and though it was wise enough to see the danger, it was not wise enough to suppress the invention entirely. The scientists experimented with a new type. Something went wrong. Matter was disintegrated. The crust of the earth was weakened so that the volcanic fires burst through. The earth cracked open. The whole world shook in great paroxysms, and when all was quiet again Lemuria no longer existed."

"A legend," I said. "An exaggerated version of some little local eruption. As for this tale of the great Lemuria—well, it may amuse children as much as any other fantasy."

Zacta shrugged his shoulders. "Truth is not altered by belief or disbelief. Lemuria, I say, destroyed herself: it shall never be said that Atlantis destroyed herself."

We looked deep into one another's eyes, exchanging a challenge.

"You must suppress that knowledge," he repeated. "Vibrators must not be built."

I laughed. "Your information is out of date. Six vibrators have already been built and mounted."

The old man sagged further in his chair. He looked even older; his eyes were tragic as he stared, at last he asked:

"Where are they mounted?"

"They are strung along the east coast from Azco," I told him. "It is a chain of defense against attack from beyond the Pillars of Hercules. The barbarians in Aegypt and the countries round its sea have become restive. They are jealous of our prosperity, and sooner or later they will attack us. The vibrators will strike their crews and their rowers dead, and not a drop of Atlantean blood will be spilt. Think of that, Zacta, think of that mastery and then you will see what the vibratore really mean to us."

Zacta answered slowly: "Truly you have limited vision. How long will your machines remain mere defensive weapons? How long will it be before they are carried out into the world to conquer; to spread death, destruction and deserts? No, I say, the vibrators shall be destroyed."

"And I say they shall not."

We faced one another tensely. Zacta's eyes grew hard and menacing. A youthful strength and purpose seemed to shine in them. I knew that he saw Atlantis, perhaps all culture, hanging upon our decision. So did I, but from the opposite angle. His blue veined, fragile hand began to move towards his side.

I was younger and quicker on the draw. There was a faint "phut" from my hand tube. Zacta's tube clattered on the floor. He fell forward with a little feathered dart in his heart . . .

The Inventor Berserk

● I stood for a moment scarcely conscious of what I had done. And then as I gazed at his slumped form the true enormity of the thing came home to me. I had killed the greatest man in all Atlantis. Yet I was but the instrument of his destruction; the true contest had been between Zacta and my vibrator—and the vibrator had claimed the wisest of men as its first victim. Somehow I began to think of my machine as a sentient creature; I was fighting to protect the thing to which my brain had given birth.

I glanced swiftly round the room. There had not been noise enough to alarm the guards, but they were posted outside the only door. Could I march out trusting to bluff? The risk would be great for I did not know Zacta's usual method of dismissing his visitors. The window offered more hope, providing that I was not noticed from the street. I decided that it was safer than an attempt to pass the guards. Impatiently I kicked off my sandals and fastened them to my belt, and then, thankful that Zacta's austere taste had not caused him to remove the decoration from his house front, I grasped the scrolled stonework beside the window and began to climb.

Luckily there was only one floor between me and the roof for though the carving offered easy holds I was in bad form for such exercise, moreover, I was afraid of becoming giddy. It was with intense thankfulness that

I at last pulled myself across the coping. There was little time to waste. I had no idea when someone would enter Zacta's room and find the body.

As swiftly as I could I refixed my sandals and looked for the roof door. It was not difficult to find, and luck was with me for it was unlocked. At the top of the stairs I pulled myself together and began to descend with an appearance of unhurried dignity.

In the forecourt my car waited, balancing on its gyroscopes. I approached it unmolested and slid thankfully into the driving seat. The hand which I put out for the steering stick was trembling violently. The gates opened before me and I jerked the machine forward.

So far, so good. But where was I to go? When Zacta's body should be found every man and woman in Atlantis would be against me. Every man . . . ? No, perhaps some of my assistants would understand. The vibrator meant everything to them. They would realize that obedience would have caused all our work of years to go for nothing. Tlantec, my head assistant was near Azco where he had been superintending the erection of the vibrators. A glance at the indicators showed me that the batteries were almost full; there would be more than enough power to take me to Azco. I made to the east side of Zapetl and opened flat out. The little gyro car gave everything she had.

Some hours later I slid to a stop outside the control house on the cliffs above Azco. Over the house towered Number One Pylon, supporting the greatest of the vibrators. Far to the north I could see a similar though smaller pylon, the second of the chain we had erected. Before I could climb out of the car, the door of the house opened. Tlantec, with a dart tube in his hand, stood facing me. I knew that the news had reached him.

"Zacta is dead," he said. "They say you killed him."

I began to explain and Tlantec's eyes grew wide as he listened. When I spoke of Zacta's ban on the vibrators he stared incredulously.

"But why—why?"

I repeated the old man's words and he frowned.

"He must have been mad—the greatest power in all the ages to be thrown away for an old wives' tale."

"—And so," I finished, "It came to that. Nothing would alter Zacta's mind once it was made up. Either he or the vibrator had to be destroyed."

● There was a considerable pause. I waited anxiously for Tlantec's decision for my immediate fate was in his hands. If he should choose to shoot me where I stood, he would be acclaimed a national hero . . .

He lowered the tube slowly, gazed at it in a half absence of mind and then turned his eyes back to me.

"You were right, Xtan," he said, "but I wish there had been some other way."

I nodded. "So do I—but you know Zacta's power. There was no other way."

We walked together into the house. "And now?" he asked.

"We must communicate at once with the other pylons. If necessary the vibrators must fight against their own destruction. As soon as it is known that I am here we shall be attacked."

Tlantec looked white. "You mean that we must turn the machines to landward—train them on our own people?"

"How else can we protect them?"

He went away to call up the other pylons while I searched for some badly needed food. He was gone perhaps half an hour. When he came back it was with a serious expression.

"Pylons 2, 3 and 5 are agreed to stand with us," he reported, "but numbers 4 and 6 are opposed. They say that if Zacta condemned vibrators, then vibrators must be destroyed, and they will obey him."

I thought rapidly. If pylons 4 and 6 were to turn their machines on us it would be the end.

"Quick," I said, "get the protection suits."

While I was still struggling into mine Tlantec had fastened his and gone to the window. He called me to him and pointed down to the town. Even at this distance of three miles it was plain that something unusual was taking place. From the city gates a crowd of men and women was hurrying along the road towards us. Either Pylon 4 or Pylon 6 must have informed the town where I was to be found and the crowd was out to avenge Zacta. I hurried to the message machine and made connection with the military barracks in Azco.

"Xtan speaking," I called. "Head back your people or I will not be responsible for the consequences."

I crossed to the big control wheel in the middle of the room and spun it. The big vibrator far above swung slowly to face the town. Tlantec was looking very pale.

"But this is only a mob—unarmed," he protested.

"A mob is capable of destroying the vibrator. They must be stopped. Switch on minimum power."

He obeyed with reluctance. The crowd was as yet out of range and we watched intently.

A mile and a half away from us they came to a stop. Those in front were behaving queerly. Staggering and moving with queer, twitching, wooden actions. The vibrations at that distance were too weak to kill them, but strong enough to disorganize their movements. Those behind did not understand what was happening and relentlessly pushed forward; several of the leaders dropped and lay still. Those to the rear suddenly realized what they faced. They surged to and fro in panic, then broke and retreated pell mell.

The message machine rang stridently.

"Pylon Number 2 speaking. Have you gone mad, Xtan?"

"The vibrators must be saved—at any cost."

The reply was bitter. "You have killed a score of unarmed men already, Xtan. We won't stand for massacring our own countrymen. Get that?"

"But if they get close they'll wreck us," I said desperately.

The voice answered with a sneer. "Are you sure it's not your own skin you're worrying about? You murdered Zacta. Pylon Number 2 is quitting, and I guess the rest will, too."

The machine went dead. Tlantec spoke from the window.

"They're running back into the town."

Following his words came a whine overhead, followed by a dull, distant boom. We looked at one another. The guns behind Azco had opened up. There was only one way for us to silence them.

"Full power on the vibrator," I ordered.

Tlantec did not move. He stared at me with a curious intentness.

"We should destroy all Azco."

"Those guns must be stopped."

"Every man in the town and for miles around would die. You must be mad. Think of the consequences, man. You'd ruin the country."

The Last Destruction

● I shrugged my shoulders and walked across to the switchboard. What were a few lives? To me at that moment no price seemed too big to pay for the preservation of the vibrator. But before I could pull over the handle Tlantec was upon me. The force of his attack hurled me to the floor, but he could get no hold upon the cumbersome garments I wore. I wrenched free and rolled to one side, but before I could rise he was on me again, hammering with futile fists against the heavy clothing.

I groped desperately for my dart tube only to remember that it was inside by suit, out of reach. With a heave and a twist I managed to roll uppermost again. Both of us were breathing hard for the suits were weighty. I sought with clumsy gloves for his throat, but when I found it, it was impossible to get a grip. Swiftly I changed my tactics and began to fumble for the fastenings of his suit. The vibrator was still at minimum power and directed towards the town, but here, right below it, there might be sufficient radiation to do the job . . .

He felt my change of plan and knew what I was after. His struggles grew still more desperate, swinging from side to side in an effort to throw me off, and causing my groping hands to slip again and again from the fastener. At last I managed to get a finger through the ring, and at that moment Tlantec put forth his mightiest effort. The heave he gave sent me flying to one side, but my finger remained crooked in the ring, and as I went his suit was ripped wide open. I felt him quiver as the vibrator did its work. He never moved again.

I struggled up, dizzy and panting. Another rumbling boom reached me. How many shots had been fired while we struggled, I could not tell. It was surprising that the pylon had not been hit already. With an effort I lurched across the room and pulled the full power switch.

I let it stay for a minute before I pushed it back into place and crossed to the windows. The sight I encountered shocked even me. As far as I could see the country was devastated. The vibration had withered grass, leaves, bushes and flowers alike. They drooped and sagged where a few minutes ago they had proudly waved. I turned my gaze towards Azco. The city was lifeless; men lay where they had fallen in the streets. The only moving thing was the smoke which still rose from untended fires. On the road in the foreground was a tangle of men and women; a minute ago they had been a crowd in full flight, but none of them would ever run again. In the harbor vessels, still with the wind in their sails sped unguided to ram one another or to crash upon the stone quays. But—and most important to me—the guns had been silenced. The vibrator was safe.

I crossed back to the board and switched it off entirely. There was no longer need even of minimum power. Within miles of me was nothing living.

I went outside and looked up at the great vibrator. My right hand come up in a salute.

"You and I will rule the world," I told it. Suddenly it all seemed irresistibly funny; I began to laugh and laugh . . .

I stopped laughing as abruptly as I had begun. Why had I been laughing? I did not know and I began to feel soberly frightened. "You must be mad," Tlantec had said. Had he been right? Was I going mad? Why, why had I begun to laugh so wildly, senselessly? I went back into the building queerly afraid. I seemed to be two people, one of whom I could not trust, and who might take control at any moment.

* *

My memory of time is hazy, but I know that it was two or three days later that I saw something moving in the distance. I fetched field glasses and managed to make out a marching column of men advancing from the interior. They wore uniforms, but of no regiment which I knew, moreover they were accompanied by unfamiliar machines. Evidently the attack was beginning. I had expected it. I would let them get a little closer, and then blast them out of existence.

I waited impatiently. I was filled not with the desire to kill, but with the determination to assert the supremacy of my vibrator—the greatest power in the world, the triumph of man's genius.

"At ten miles," I said aloud, "you shall conquer them."

● But the marchers were still twelve miles away when my patience gave out. They seemed to be in no hurry to attack. Once more I laid my hand on the power switch.

"Now show them who is master," I cried as I pulled it over.

I took but one glance before the field glasses dropped to the floor. The advance had not stopped. The men were plodding on as deliberately as before. A hurried glance at the dials assured me that the machine was working perfectly. What, then, could have happened?

Suddenly I had it. Those unfamiliar uniforms were insulating suits. One of the other pylon commanders had given away the secret. The vibrator was straight upon them. How long, I wondered, would the suits withstand its full force? I, myself, was only assailed by reflected vibrations, and safe enough. All I could do was to keep the machine full on and trust to time.

Half an hour later they were still advancing. I began to lose hope. For all appearances the vibrator might as well have been inactive. I smiled rather bitterly when I recalled that the longest time we had dared to run even a small vibrator in our tests had been two minutes. We had not known what we had feared, but we had feared something.

Suddenly, that something began to happen.

Five miles away the ground split from a center in radiating crevasses. A large circle crumbled away to dust before my eyes, leaving a vast, shallow bowl. But the bowl did not remain shallow; its bottom continued to crumble and to sink. I saw the men far beyond it halt in dismay and turn back, hurrying as best they could in their heavy clothing.

A violent shaking of the ground sent me to the floor. The pylon above rocked and groaned, but it did not fall. I crawled across the room and threw out the vibrator's

switch, but as I did it, I knew it was too late. Zacta had been right. My vibrator was bigger than I knew; it could not only take life, but by prolonged exposure it could disintegrate matter. The shallow bowl had now become a stupendous shaft. The internal pressures were shifting. Another shock set the whole room shivering. I staggered back to the window. The ground had heaved and was cracked in all directions. What had I done? What had I started? A catclysm which would shake the world: which might destroy all Atlantis.

A still greater shock made me clutch the window frame. The mighty cliffs to the north had split asunder; up the cleft the sea was roaring in one stupendous wave. From inland came a spurt of livid flame, searing the heavens. The internal fires were loosed.

David Hixton paused and then he added: "The next thing I heard was old Fossdyke's voice. It was still booming away about "this weapon which will give us the mastery of the world." I could not stand it. I got up and ran from the room.

"I did not stop running until I had reached my workroom, for there was only one thought in my mind. I must smash the vibrator . . .

"Kis-Tan had let it loose on Lemuria. Where is Lemuria? Xtan had let it loose on Atlantis. Where is Atlantis? No one should say that Hixton had loosed it again.

"I went at it with a sledge hammer, but Alan heard me and came in too soon. And now they've got it. In ten years or less every man will be reviling my name—every man, that is, who is still left alive."

Diana put a hand over his.

"My dear, they have not got it all. Only part of it. You smashed some important piece—I don't know what piece, nor do they. They can't make it work."

David looked up at her, half-comprehending.

"They can't—?"

"No, dear, it's useless. None of your assistants knows enough to help them."

David's eyes brightened, his face twisted. He began to laugh and the tears trickled down his cheeks. Diana stared while the laughter grew wilder and louder. Aghast, she tried to silence him, but the laughter and the sobbing both increased. Two attendants came hurrying across the lawn. One of them attempted to sooth David from his paroxysm. The other took her away.

"You've let him excite himself too much," he said, accusingly.

"But he isn't mad," said Diana. "Not really mad."

The attendant listened for a moment to the hysterical laughter behind him. He shook his head.

"Well, that all depends on what you call madness," he said.

THE END

Brahma-Kalpa—or the Expanding Universe

By EPAMINONDAS T. SNOOKS, D. T. G.

● THE DEMIURGE sat down in his comfortable chair to rest after a day of activity, and an evening hour in his garden. He gathered up a jar of a well-beloved blend; filled his pipe; and applied a match. It flamed up; the contents of the bowl reddened; and great clouds of smoke rolled out into the air. They spread apart, growing in size as they receded.

* * *

"There is no doubt," said a learned professor of a great university (in the greatest city of the greatest country on the face of the greatest electron revolving in the most important atom of the very centermost whorl of smoke): "there can be no doubt that our universe is expanding. Careful measurements with our best instruments show a *velocity of recession*, which increases as one approaches the edge of our Cosmos."

"But," observed a sceptic, "is this not contrary to all the laws of gravitation? Is it not a maxim of our science that every particle of matter is drawn to every other particle of matter? Why, then, should the Cosmos be violating the laws of its own nature?"

"We cannot say what the First Cause is," replied the professor. "We have no means of knowing from what source of power the Universe has derived its motion. We do not know where matter originated—whether it is being created, or whether it is being destroyed out in space beyond the reach of our telescopes. So far as we are concerned, the radius of space is six feet—and twenty million generations will live and die while the waves of energy which we perceive are crossing that awful gulf!"

The doubters were silenced.

* * *

"My dear!" exclaimed Mrs. Demiurge: "What a terrible reek in here! If you *must* smoke that old pipe, can't you open a window! You must hate fresh air!"

The Demiurge threw open the window. A rush of the evening breeze dispersed the wisps of vapor; and it vanished, till even the odor did not remain.

* * *

"Sir," said a student of astronomy (at an observatory on another electron, at the moment occupying the place of honor in a dynamic universe): "if the universe is exploding as you say, Professor, what is to be the end of it?"

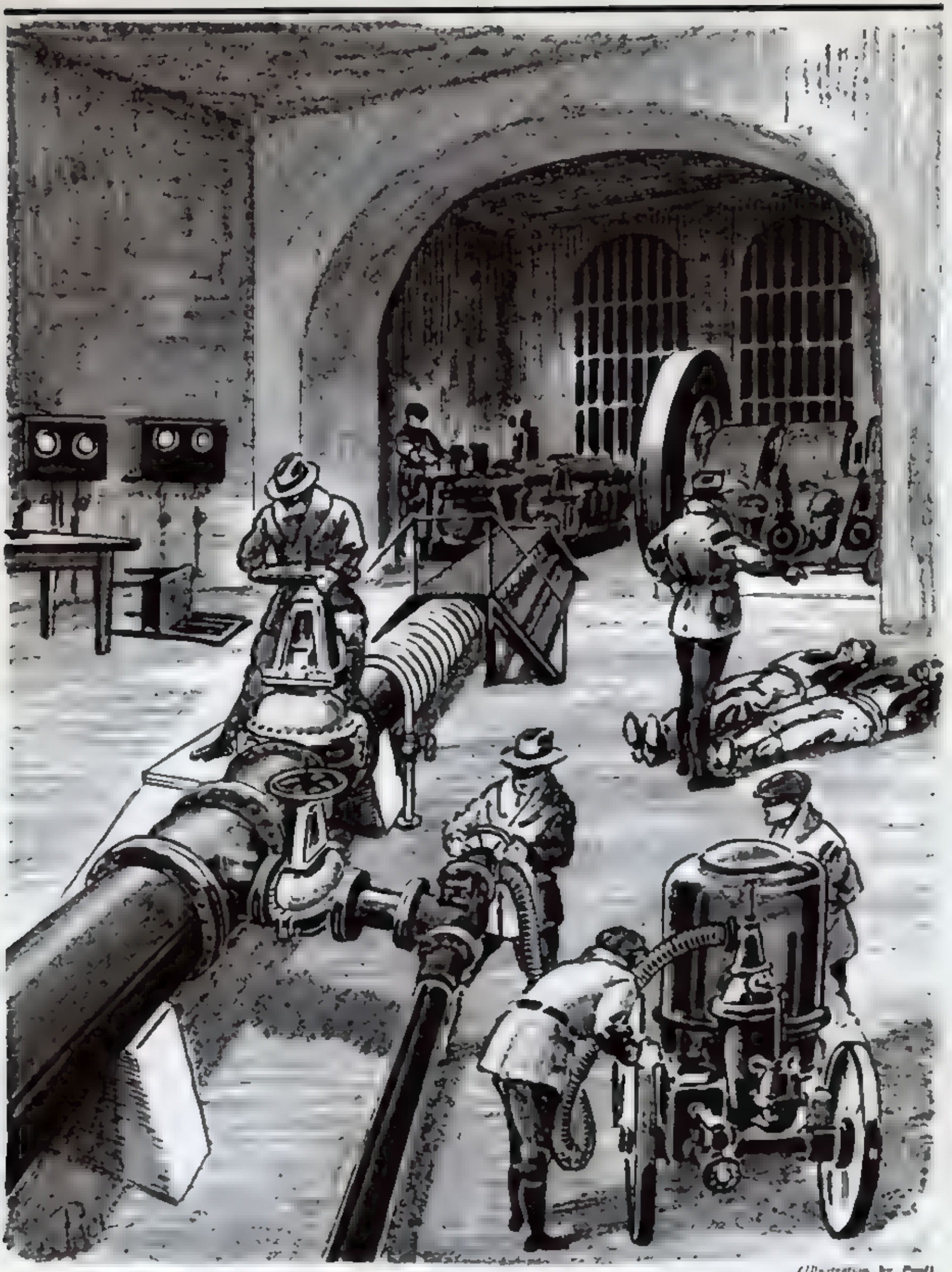
"There is no doubt," said the Professor, "notwithstanding the shortness of our observations, which have extended over but a few thousand revolutions of our earth about its nucleus, that the universe is expanding in size at a rapidly increasing rate; that its elements are becoming further and further separated, and that the energy level is decreasing. In short, the universe is perishing in one vast cataclysm!"

"But there is nothing to fear in our lifetimes, is there, Professor?"

"No," said the Professor. "If our race should be spared so long, two thousand million million generations would live and die before the effects can become perceptible to their senses."

And business as usual continued upon a million million million electrons in the perishing universe of smoke.

THE END



(Illustration by Paul)

The masked men switched off the motor and wheeled the tank into the early dawn. To the astounded pump tenders the whole affair would have seemed an unpleasant dream if it had not been for their bonds.

THE REVOLT OF THE SCIENTISTS

II—The Great Oil War

By NATHAN SCHACHNER

● This is the second of a series of stories of the scientists who have revolted against stupidities and injustices of modern life, and who are determined to use their great scientific gifts to bring about a better social order, instead of swelling the profits of financiers and the war ambitions of political leaders.

In this story, our Technocrats turn their attention to the oil industry, and in a dramatic, vivid and realistic manner Mr. Schachner shows how a small group of determined scientists can battle against greed, privilege and intrenched wealth. And withal, we see a few new stunts in the realm of possible scientific devices.

● The American Petroleum Institute was in session. It was a bitter stormy session. The underground auditorium at 29 Broadway barely held the unruly mob. Passion ran high; it showed on the mottled red faces, the savage champing on unlit cigars, the voices cracked with rage. The casual beholder would never have believed that these men were the Titans of the oil industry, representing a total investment of twenty-five billion dollars.

The man on the platform could barely make himself heard against the rising tumult of sound. He was Wilmot, Secretary of the Interior, bearing a message from the President of the United States. He raised his voice to the straining point.

"The patience of the President is exhausted," he shouted. "You have consistently broken every agreement for voluntary proration of your oil. A few small independents among you have been honest, but the big companies—" he turned and shook his finger at the chairman of the meeting, "I mean you—and you—and you—have pumped your wells at dead of night, draining the common pools for your selfish enrichment. Small wonder the independents, in anger at your treachery, resorted to arms. It was illegal, but understandable. I believe you goaded them to it, welcomed the opportunity to wipe them out. As a result, the oil fields are a welter of blood and oil flowing unchecked from wrecked wells. The President has instructed me to inform you that he will introduce a bill in Congress to take over control of the industry."

At that, the confusion of sound rose to a full throated roar. Well-fed men jumped to their feet, shouting and yammering inarticulate things. The sacred rights of property were being attacked! It was Communism! It was worse! Here and there a small independent raised a faint cheer, and was promptly pummeled by indignant neighbors into silence. A few fist fights started.

The chairman of the meeting got slowly to his feet. He was old and leathery; the skin hung in loose folds on his face. When he spoke, his voice was hardly above a whisper. Yet every syllable carried; for a sudden silence descended on the angry, gesticulating mob. Harry D. Stoneman, Chief of Standard Petroleum, controlled over fifty per cent of the traffic in oil. His dominant figure cast a shadow over the entire industry.

"Secretary Wilmot," he whispered heavily, his body swaying for support against the table, "you are talking nonsense. Congress will never pass such a law, and if it does, the Supreme Court will declare it unconstitutional."

How well he knew it! the Secretary reflected bitterly. Old Stoneman and his kind carried the lawmaking body in their pockets.

"This country," the chairman's voice strengthened into a wheezy whine, "is founded on the rugged individualism of the American citizen; on his freedom to run his business his own way, without interference from the government. The oil industry is fundamentally sound, and as soon as certain meddling busybodies, both in Washington and in our own ranks, are eliminated, conditions will right themselves."

He sat slowly down, while a storm of applause broke from the assembled captains of industry. This was what they wanted; the freedom to be as predatory as they wished; to break the small independents, swallow the larger ones, rule with blood and oil under the benevolent aegis of Harry D. Stoneman.

The Secretary of the Interior shrugged his shoulders wearily and turned to go. He had told the President neither blandishments nor threats would move these short-sighted money men from their suicidal course. But he stopped short.

There was a commotion at the rear of the auditorium. Three men were walking swiftly up the center aisle in a compact group, pushing their way unceremoniously through the overflowing crowd.

A little ripple of sound followed in their wake, swelling to astonished gasps as they neared the platform and more and more men recognized the three. Certain unobtrusive individuals—Secret Service men to be exact—began edging their way forward unostentatiously.

The three men mounted the steps to the platform. The Chairman had risen again, an almost human gleam of interest on his seamed countenance. The Secretary no longer thought of leaving. The oil operators buzzed with excitement! The names of the three intruders rose above the noise in tumultuous little leaps as each man explained to his less fortunate neighbor, who they were.

"Yes sir, that grizzled old fellow with the Yankee look is Adam Roode. Disappeared from General Power over six months ago. Thought he was dead."*

"By God!" a portly man exclaimed suddenly. He was President of Colorado Coal and Fuel Co. "There's Harmon. Hey, Jonas, where the hell have you been? What's the meaning of this?"

"Who? The young blonde-haired chap? That's Cornelius Van Wyck; you know, polo player, explorer and all that. My kid roomed with him at Princeton. But he was supposed to be dead, too. Threatened to fight the Liquor Racket and everyone thought he had gotten himself bumped off."

"Say, don't you read the papers? Remember the list that was found in the Trust's offices in the Larkin Building after the big smash-up? Had these chaps' names on it with a lot of others."

● "There're rumors they had something to do with the blowing up of the distilleries."

"And that airplane sucking out of sight above Ribling's brewery. Queer thing, that."

"They never found it again, did they? What was that convict banker's name who was supposed to be in it? Head of the Racket, they claimed."

"Melchior, Raymond Melchior. Very funny business. I'll bet those fellows had something to do with it."

"You're crazy," the President of the Colorado Coal and Fuel Co. exploded. "I know Harmon. He was my chief oil expert. Sane and sound as a nut. None of these radical, wild-eyed ideas about him."

"Well, how do you account for—;"

"Must have been amnesia or something."

"There's a warrant out—"

"Say, Bill," said one Secret Service man to another, "think we ought to grab them now?"

"Better wait. They can't get away. Wilmot may get sore if we don't hold off for his signal."

Then the buzz of chatter died down, and the crowd craned their necks eagerly.

Old Stoneman was murmuring politely: "Mr. Roode. This is a pleasure. Haven't seen you since you worked with my Foundation. And Mr. Harmon. Have to steal you from the Colorado Coal some day; you're too valuable a man to stay with them. Van Wyck, isn't it? Never met you before, but my daughter followed your goings on with considerable interest. Has your picture all over her room. She's twelve, you know."

They all shook hands solemnly. Then the oil man stared at them a bit quizzically.

"The papers have been full of you the last few months, but I won't inquire. Not my business. What can I do for you now? This is a private meeting, you know."

Adam Roode said slowly: "We have a message to deliver to the oil industry. We felt this occasion would be the best time and place to deliver it."

The ordinarily glazed eyes sparkled with sudden flame. "Hmm, most interesting. But we have an agenda of speakers. I'm afraid it would be impossible—"

"Let's get down to facts, Stoneman," Harmon interrupted brutally. "I know you and you know me. The message Roode speaks about will be delivered here and nowhere else. It's important—damned important—to you and every other oil man in this hall. Your nice little prepared speeches can wait. They won't want to listen to them if they hear us."

"And if I refuse you permission—?"

"So much the worse for you. You'll regret it—bitterly."

Their eyes clashed. The clamor in the audience grew. Secretary Wilmot walked over.

"Let them have their say, Stoneman," he suggested. "It's all very curious—" His eye caught that of the Secret Service man called Bill, and drooped significantly.

The chairman shrugged: "All right. It's highly irregular, but I'll give you ten minutes."

"That's all I'll need," Roode responded quietly and walked to the edge of the platform. A vast hush fell on the oil men.

"You men control the oil industry," he began conversationally. "Over ninety per cent of it is in your hands. Your combined word is law. Your investment approximates twenty-five billion dollars. That investment is gravely endangered. The very fact that you are now in session, that the Secretary of the Interior is here today, shows that you know matters are radically wrong."

Some one cried: "What of it?" but Roode paid no heed.

"None of you is making money today. Your oil, that sold back in 1920 for $3.44 a barrel now brings only fifty-six cents. What remedies have you proposed? Why, increased drilling, increased production. The result is that you are depleting the oil reserves at the rate of twelve hundred million barrels a year, and Wilmot's Geologic Survey reports exhaustion of all available reserves within five years at that rate."

"You're not telling us anything new," a man shouted.

Roode turned on him. "No, it's not new, but you're so blind that you don't seem to realize it. You drill competitively in a unit geologic field, with the result that every operator tries to be the first to exhaust the pool before his competitors. Naturally more is produced than the market can hold, technical efficiency goes by the board, vast quantities of oil and gas are wasted, and the field is drained dry."

"What do you suggest, Mr. Roode?" the chairman murmured ironically.

● For the first time the old scientist's eyes blazed.

"Planned control of production and of distribution. The industry is not your private pickings; it is a vast public utility. You must pool all your interests, place them in the hands of a Board of trained technicians, strip yourselves of all power. This Board will operate all the oil fields as a common unit, allocate production to satisfy the market, introduce the latest technical methods so as to salvage every cubic foot of gas and every drop of oil that you now recklessly waste, and see to it that the consumer gets the benefit of our efficiency."

"What about us?" a portly operator yelled.

"You'll be taken care of better than you deserve," Roode shot back. "Your properties will be evaluated at real technological cost; and a fair rate of interest paid you on your investment, so that you can retire and play the races, or keep women."

The crowd was becoming angry. Men rose to their feet

*See "Revolt of the Scientists"—WONDER STORIES, April 1933.

muttering.

"I suppose you'll be the fair-haired boy kind enough to take control," someone called sarcastically.

"Exactly," Roode answered quietly. "I and my associates and a staff of trained oil experts whom Mr. Harmon will pick."

The grumblings rose to angry yelps. There was a surge forward.

Stoneman rose and the crowd fell back, silent.

"Mr. Roode," he said, "you are a Technocrat." It was not an accusation; it was a statement of fact.

The old scientist pulled himself proudly erect.

"I shall not deny it," he said.

A vast sussuration went up from the assembled oil men, a communal sigh of astonishment that swelled into a full throated roar of rage.

"Damned Technocrats!"

"I knew it from the start!"

"Damned nerve, coming here and telling us what to do."

"Lynch 'em!"

Men scrambled over the chairs, pushing and shoving in their eagerness to get at the men who calmly acknowledged the hated appellation. Technocracy was anathema in the year 1938; confession to its tenets a penal offense. The solid business men of the country had not forgotten the bloody revolt of several years before.

Young Van Wyck and Harmon had sprung to Roode's side at the first sign of trouble. Their right hands rested in their coat pockets.

"We'd better be going, sir," Cornelius urged.

But the physicist shook his head. He raised his voice above the tumult. "I give you a last opportunity to consent. Tomorrow it will be too late. We shall take the industry from you and pay you nothing."

Already men were climbing onto the platform. The hall was a sea of angry distorted faces and shaking fists.

"Kill them!" The cry rose to a veritable chant of hate.

Secretary Wilmot was nodding frantically to certain key men in the audience. From all sides they converged, a half dozen of them, shouldering their way efficiently through soft, winded bodies. Bill vaulted easily to the platform. His hand extended to grasp Roode. "I arrest you by virtue of—" His partner reached for Harmon.

"All right; let them have it," said Van Wyck suddenly.

Three hands withdrew from pockets, bringing forth tiny pellets. Three hands flung them to the ground, and simultaneously drew forth latexed masks that slipped with a snap over their heads.

Bill saw the maneuver and reached for his gun. But it was too late. The tiny balls had burst with a soft plop. Instantly huge clouds of smoke billowed outward, enfolding, enveloping in a choking embrace. Bill's lungs coughed once, and he slipped gently to the floor. Within seconds the hall was a mass of ghostly white vapor, ominously silent. Heaps of sprawled men glimmered faintly in the swirl of white, stricken as they stood. Their breathing was slow, but regular.

"Fools!" Roode spoke behind his mask with vast contempt. "So much the worse for them." He bent his head over his right shoulder, spoke into the flat communication disk strapped beneath his coat.

"Dribble, Roode calling. Prepare Plan A for immediate execution."

"We'd better be on our way," said Van Wyck, "before the police arrive. McCarthy has the car waiting around the corner."

Three ghostly figures, wavering in the billowy smoke, picked their path behind stabs of light emanating from pocket-flashes to the exit leading off the side of the platform.

A reporter, fortunate enough to be standing at the rear of the hall, had dived through the door at the first puff of smoke. He raced through the corridors, out into the street.

"Taxi! Taxi!" he yelled.

A cab slithered to a stop in midstreet. The reporter piled in, slammed the door.

"*Evening Mail*," he ordered breathlessly. "Ten dollars if you make it in a minute flat."

Already the sirens of fire apparatus and police cars were wailing outside.

"Oh boy, what a beat!" the reporter exulted as the cab started forward in a wild leap that sent him sprawling.

CHAPTER II

The Conspiracy Begins

● The great stratosphere plane, gyrocopter vanes whirling, dropped slowly over the wild Maine coast. The sea foamed in crashing rollers against ironbound cliffs. The virgin forest stretched interminably inland, not a break in its upflung needles. As wild and deserted an area as was to be found anywhere within the confines of the United States. No ship disturbed the lashing fury of the ocean, no curling smoke disclosed human habitation on land.

Yet the plane continued dropping. At the hundred foot level, a strange thing happened. Directly beneath, the unbroken tops of pines and firs seemed suddenly to roll back, disclosing a square treeless area below, smoothed off to the level of a ballroom floor. The cabined flier sank slowly to the ground, quiescent among a half dozen other planes. At the same time two flexible curtains rolled swiftly out from their supports overhead, clamped into rigid tensity to form a continuous whole. The surface presented to the outer world was skillfully camouflaged to show the conical tops and characteristic needle formation of evergreens. A certain translucence permitted the filtering of a dim religious light into the landing field.

Roode, Harmon and Van Wyck stalked stiffleggedly out of the plane. Pat McCarthy, former flying expert for General Aviation, redheaded and proverbially Irish, locked his controls, and followed out.

As if magic three tight-lipped mechanics appeared from the shelter of the surrounding trees, swarmed over the plane in a very ecstacy of tightening struts, cleaning sparkplugs, tuning motors. McCarthy lashed them on with salty tongue and gesture.

A young man ran swiftly out of the trees. He was Peter Dribble, Roode's assistant, himself an expert in atomic physics. His face lightened with pleasure.

"I was a bit worried. The ether's choked with government broadcast warnings, with your full descriptions. A fabulous reward is offered for your arrest. Every army, navy and aviation unit is checking out for you. Regular commercial broadcasting has been swept off the air."

McCarthy paused in his measured flow of profanity to laugh gustily. "Didn't even see a bird. The fifteen mile level's a bit too high for the Air Corps."

Roode said sharply: "You received my message?"

"Certainly. Mighty lucky Silversmith had the foresight to install those automatic rebroadcasting units every twenty-five miles along the coast, otherwise it would never have come through. But what with not hearing from you since, and the hue and cry out for you, we all spent some uneasy moments."

Van Wyck laughed. "They can search from today till doomsday and never find us here. No one even knows I own this tract."

"Get the Council together, Peter," said Roode. " We have work on hand."

"Righto," the young man answered cheerfully and disappeared into the forest on the run.

The four men moved to the left at a slower pace. Into the heart of the woods they went, following an invisible trail. A close inspection of the tree trunks, the spreading branches of seemingly innocuous bushes, would have disclosed a maze of very fine wires, so close together and crisscrossing so cleverly that it was impossible for an intruder to push his way into the forest without brushing up against great numbers of them. At a moment's notice they could be charged to carry fifty thousand volts, more than sufficient to burn a whole invading army to a crisp.

They skirted the side of a narrow ravine that ran irregularly down to the sea. You had to lie flat over the rim to see the deep inlet that connected with a still deeper channel of the ocean through the boiling rockstrewn surf. Neither from sea nor from air was the indentation visible. If you strained far enough, a submarine could be seen snugly at anchor a hundred feet beneath the overhang. A path led steeply downward, switchbacking cleverly all the way. Large caves extended from the inlet back into the solid wall of the cliff. In them the heavy machinery of the embattled scientists was housed; the complete power plant, stores of provisions and refuge in case of attack.

But the four passed the downward path, went on until they could hear the crashing boom of the surf far below. A long low building loomed in front of them, no higher than the surrounding trees, and constructed of logs. The roof was camouflaged similarly to the unfolding curtains over the landing field. It seemed but an unbroken stretch of trees. There were many other similar buildings scattered through the woods. This particular one housed the executive offices.

A concealed radio was intoning softly as they entered.

"Stand by for further instructions," the government announcer was saying. "Fugitives believed to have fled northward by plane. Northeastern units scour allocated areas carefully; report every fifteen minutes to liaison officers. Canadian provinces please cooperate. Total rewards for capture increased to twenty thousand dollars by Tideocean Oil Co. Victims still unconscious. Grave fears expressed by doctors for their recovery. Signing off"

Dr. Kuniyoshi, the Japanese biologist, and Rudolph Chess, the German physiological psycholologist, turned abruptly.

"Welcome, my dear colleagues," the German smiled broadly. "You are safe, yes. We listen to those fool reports. Those doctors know nothing, not so, Kuniyoshi?"

The little Jap bowed and smiled.

"Our sleep gas, it will last six hours; nice, healthy, refreshing sleep. They wake up fine. What you do now, Roode?"

"Starting serious work, Chess, but here come the others."

They were coming in, the Council of Scientists, by twos and threes. World famous men, each an authority in his respective field, who had deliberately outlawed themselves for the benefit of humanity. There was Stewart Peasley, chemist and explosives expert; Lee Randolph, former Chief Engineer of American Supermetals; Lord Wollaston, the Englishman who knew more mathematics than anyone else alive, and pursued photography with all the ardor of a hobby; Herbert Grace, steel and armorplate; Lake Forrest, the submarine technician; Alfred Silversmith, supreme in radio; and Dr. Meyran, famous surgeon and inventor of the radio-knife technique. Only Cornelius Van Wyck was a layman in that group, but his millions furnished the sinews of war, and his daring adventurous personality had been of incalculable value in the smashing of the Liquor Racket.

Silently they took their seats, fresh from the tension of their laboratory problems. Almost daily, new secrets of nature were being disclosed, new inventions to be used in their unremitting war against the forces that held mankind in subjection.

● Roode surveyed them with affection. He came to the point crisply.

"Just as we had expected," he said, "the oil industry will not submit tamely to be taken over and run on technocratic principles. They will fight. Old Stoneman is a canny chap. I believe, and so does Secretary Wilmot, that he has deliberately fostered the present chaotic conditions in the industry. He goaded the independents to open war. That will give him his excuse to crush them mercilessly and take over the entire oil industry from fields to refineries. We've got to crush his little game. It will take all our resources to do it."

"We did very nicely for the Liquor Racket," Van Wyck remarked.

"That was child's play to what we're up against now," Roode said soberly. "The Racket was a preliminary gesture on our part. To begin with, it was an illegal combination with not a hundredth part of the power or financial backing possessed by Stoneman and his crowd. We were able to employ certain forcible means we dare not use now. We cannot destroy oil wells or refineries; that would waste the very resources we are trying to conserve for the use of all humanity; we cannot blast our way into possession by open violence—we are not quite ready to cope with the United States Army. We must employ subtler means, within the law so far as possible. This is our first big attempt to assault the present system of things in favor of a Technocratic state, and everything depends on our success or failure."

A little murmur greeted his words. Put thus baldly, it *did* sound like an enormous task to tackle.

"But we have our plan," interposed Randolph. He had been one of the original Technocratic group before they were scattered, and it was on his energy surveys and charts that they relied implicitly.

"Exactly," Roode agreed. "Plan A; we've called it. Dribble has already commenced putting it into effect. We shall require Harmon for active work in the field,

of course—oil is his specialty; Randolph for construction; inevitably," he smiled, "Pat McCarthy for fast aerial transportation, young Van Wyck for the shock troops, and myself for general supervisory control. The rest of you stick to your laboratories—there are certain pressing problems to be solved—I'll talk to you individually about those."

"You've left me out, sir," Peter Dribble called out. "I'm not much good for laboratory work. I'd do much better on the outside."

"But your arm—"

"It's knit very nicely. Dr. Meyran says it's better than new."

"Well, we'll see," Roode said non-committally. "Will those I mentioned please remain behind."

* * *

The little group bent interestedly over the special charts Randolph had prepared.

Jonas Harmon was doing the talking. "The oil industry," he explained, "has three definite divisions; the oil wells themselves, the pipe lines connecting them with the refineries, and the refineries. For our attack to be successful—and we must remember that time and surprise elements are very important—it is essential that we operate against all three divisions simultaneously."

He bent over the map. "Look here. Each black dot represents an operating oil well. You see they are scattered all over the country; but the thickest clusters are in the Long Beach area of California, the Seminole area of Oklahoma, and the Panhandle field in Texas. Over fifty per cent of our oil is supplied from those three fields. Paralyze them, or gain control of these key areas, and we need not worry much about the rest."

"How about the supplies in storage tanks?" Van Wyck asked.

"Control of the pipe lines will take care of that. See these wavy red lines stretching from the fields to the centers of population on the seaboards? Those are the pipe lines. Over seventy-five per cent of the oil gets to the refineries through them. Steel pipes of some sixteen-inch diameter, laid not over eighteen inches underground, running thousands of miles across the continent. There are power pumping stations every forty miles to heat and force the sluggish oil along."

"It should be simple to dynamite the main line pipes," Dribble interjected.

Harmon shook his head decisively. One could see oil was a passion with him.

"That would mean incalculable waste; the very thing we have banded together to prevent. We have methods already mapped out. Control or stop some four or five of these chief arteries and the balance will not matter. Here for instance is the great pipe line from Tulsa feeding through Chicago to New York. The Saint Clair interests control it. Another goes also from Tulsa through St. Louis to New York. That's the main feeder for the Standard Petroleum refineries. This one from Tulsa to Port Arthur belongs to Texarko; and from Long Beach to San Francisco to the Doremus interests.

"As for the refineries, take the terminals of those pipe lines; the tremendous plants at Bayonne, New York Harbor, East Chicago, Port Arthur, Texas, and Martinez, California, and you have the industry by the throat."

Roode took a deep breath. "According to our plans that will require about three hundred men. We have only one hundred here now, and at least half are essential for the functioning of the plant."

"I'll take care of the men for the three oil areas," said Harmon. "They must be trained oil men; couldn't use our present force in any event. I've been in communication with certain oil technicians I know in those fields, secretly, of course. They're fed up with the present state of affairs; willing to back me in anything I say. I didn't give too much about our plans away. They are even now gathering men quietly out of their staffs, ready to jump the moment we give the word."

Roode made some rapid calculations. "Some ten apiece for the key refineries; that's fifty. We can use men from here."

"I'll take care of the pipe lines," Van Wyck interjected. I can recruit fifty good, loyal men, no questions asked, within a week."

"That's settled. Harmon, I'll rely on you to pick up strategic leases on the outskirts of the oil fields; use dummy ownerships of course. Randolph, you're to buy and prepare the necessary equipment. That's all now. In a month we'll be ready to strike."

● Some fifty miles north of Tulsa was an abandoned oil well. The gaunt steel skeleton of its derrick stared forlornly over a blackened landscape. It was the only one within a mile radius. But over to the east there were hundreds; sky-pointing fingers that stretched interminably to the flat, far-distant horizon. When the great Seminole area had proved its oil with gushers aggregating millions of barrels per day, a small wildcat concern, out in the cold, so far as the choice sections were concerned, leased this particular outlying lot rather cheaply, and sank a well with the eternal optimism of its kind.

At a thousand feet funds ran out, no oil had been struck, and the lease was abandoned in disgust, another monument to the prodigious waste of the industry. So that, when a quiet-voiced, nondescript individual sought out the original owner of the land, his tentative offer of an outright purchase was snatched at before it could be withdrawn.

Two veteran boomers, drifting through the oil country in a battered old Ford in search of employment, stopped their wheezy motor in front of the oil well in astonishment.

"Well, I'll be darned, Tom," said one, "if the old Emily dry-gusher aint showing signs of life."

Tom shook his grizzled head. "There's a sucker born in the game every minute, Joe," he observed sagely. "That there hole's dry as a bone. I know; I worked on her."

Joe cocked his head thoughtfully at the high, steel-sectioned fence that was being run up by a gang of men under their eyes. Truck after truck lumbered over the rutty road, disappeared within the growing enclosure, streamed out considerably lightened.

"Some new tenderfoot took it over, likely. 'Pears as though they got money, Joe, and seeing as how we aint got no jobs, maybe we kin help 'em spend it."

"Sure. No harm in trying," Joe agreed. "New outfits kin always use a couple of oldtimers like us. We got to git us a job right soon."

The old car bounced off the road, slammed up to the temporary steel door. Two men turned suddenly from

idle contemplation of the landscape, stepped in front of the boomers' car with a swift precision that smacked of long soldierly training. Very efficient-looking gun butts peeped out of strapped holsters.

"What do you want?" one of them remarked evenly.

Tom smiled ingratiatingly. "We aims to see the boss of this outfit. We need jobs, and we're good oil men."

"Don't need any men," the guard said decisively.

"New outfits always kin use one," Tom argued. "Used to work on this hole myself. Lemme see the boss, buddy." And he stretched his long lank legs out of the flapping door, preparatory to alighting.

"Get back in your car and on your way, fellow," the guard snapped. "I'm the boss around here."

Joe's eyes glinted dangerously. "'Pears to me, young feller, you aims to take a lot on yourself. When Joe Tuttle wants to talk to an oil-boss, no two-bit guard kin stop him." He jumped easily to the ground, only to find himself staring into the business ends of two forty-fives.

"I'm giving you just one minute to get going," warned the second guard grimly. "You're trespassing on private property."

Joe Tuttle stared thoughtfully at the guns and the determined faces behind them. He shifted his plug of tobacco to the other cheek and said casually: "You win." He climbed slowly back into the car, eased her deliberately through her gears and bumped back to the main road.

"Mighty funny layout," he drawled. "Take an old dry well, build a steel fence around her, and act mighty touchy about strangers."

"I hope they drill clear to China, bed rock all the way," said Tom viciously. "Let's go."

And the two disgruntled oil boomers drifted eastward toward the bunched oil wells, in search of employment.

CHAPTER III

Zero Hour!

● Within the steel enclosure, safe from prying eyes, were three men, for two of whom there were warrants for arrest out and who were the objects of an intensive nation-wide search. They were Jonas Harmon and Cornelius Van Wyck. The third man, Peter Dribble, was as yet unknown to the authorities.

Workers swarmed over the place, unloading heavy crates of machinery from the incoming trucks, running up strange looking structures that had no obvious connection with oil drilling, hammering and clanging away at the partly dismantled derrick, putting it into shape again, rigging up drills, casings with wall packers, pumps, all the countless minutiae of well-drilling apparatus. But what would have struck old timers like Tom and Joe as exceeding strange for an outfit that hoped to find oil, was the total lack of capping or storage facilities for any gusher that might break loose.

Van Wyck surveyed the activity rather doubtfully.

"Sure we can strike the oil pool here?" he asked Harmon. "The engineer in charge showed me samples of the formations the old well went through. Says they're not even characteristic of oil localities."

Harmon smiled. "I'm positive. The Eötvös torsion balance, with my particular improvements on it, has never failed me yet. You see," he explained, "it is so sensitive that the slightest variation in the force of gravity at any point shows up definitely in the degree of depression of the instrument. An oil pool underground, with its concomitant layers of salt water and gas, naturally does not exert the same tug as the normal heavy layers of rock. I have refined the instrument to such a degree that I can even calculate from the amount of pull just how deep the oil pool is."

"And we have one beneath us?" Van Wyck said eagerly.

Harmon shook his head. "No. The old company was wise in abandoning this well. The outermost point of the great geologic pool that underlays this entire area, and from which all those wells feed, is more than a hundred yards east of us."

"Then what—" Dribble started in bewilderment.

"I tried to buy or lease the land to the east," Harmon interrupted, "but it was impossible. Standard Petroleum and Texarko have renewable options on the whole field, and won't sell. They had to protect their wells from drainage by competitors. No doubt their geologists told them where the pool ended; that's why they left this bit of property alone."

"I still don't see—"

"Of course not; neither could the old line oil men. But I've invented a new method of horizontal drilling. I attach a telescoped drill at a ninety degree angle to the main drill. At the particular depth we wish to start, the power is shut off in the main drill and the rotary horizontal started. It opens automatically as the drill bites into the rock or sand; liquid cement of special hardening composition pours into the expanded part, stiffens, and gives thrust for the next drilling section. The drill I have here can open to two hundred and fifty yards, more than enough to hit the pool."

The young engineer in charge came over.

"How are you getting along, Milburn?" Harmon asked.

"Splendid, sir," he said enthusiastically. "I've dreamed of such a thing ever since I hit the oil fields. Control of oil by trained technicians who are interested solely in the scientific production of oil, and not in profits and cutting the other fellow's throat. Gosh, it's too good to be true." His face clouded. "I had to do a lot of things I didn't like when I worked for Standard Petroleum."

"And the men?"

His face lighted again. "Topnotchers, every one of them. Couldn't want a better crew. We'll make it, sir."

"There you are," said Harmon as the youngster hurried back to the job. "These men had a conscience, only they never had a chance to exercise it. I only let them half way into the secret, and you see their loyalty and devotion. In time, as they prove themselves, we'll ease them into more and more responsible positions."

And the work went on apace; the high steel wall, the strange power houses, the drilling apparatus, the stream of trucks bringing up unending supplies.

At certain abandoned wells on the outskirts of Long Beach in California and in the northeastern section of Texas known as the Panhandle, similar activity might have been observed by an interested onlooker. Lee Randolph was in charge on the Coast and Adam Roode in Texas. Harmon paid flying visits at dead of night to the other operations, piloted by the omni-present Mc-

Carthy, and synchronized every step of procedure.

At last everything was ready. The men on the three jobs had worked devotedly, unremittingly, day and night. It was the evening of April 5th, 1938. Plan A called for the general attack to commence at dawn of April 6th. Reports came through on the tight-beam radio, amplified all the way from the key refineries by automatic rebroadcasting stations, to the effect that the crews of ostensible laborers were ready. Peasley was in charge. The men Van Wyck had hired to take care of the pipe lines were distributed at key positions, ten men to a crew, with all necessary apparatus, safely hidden against the day.

Harmon said wearily after a last tour of inspection: "We're all ready. I've given orders for the men to turn in and catch up on some sleep. They need it, and so do I. As for you, Van Wyck, luck! Five A. M. is the zero hour."

● Cornelius shook hands, stepped into the small pursuit plane. With a whirring of gyrocopters, and the softest of murmurs from the synchronized propeller, he was off into the night. Dribble and McCarthy had left some thirty minutes earlier in the other plane. McCarthy was to drop Dribble outside Port Arthur and then wing all the way to East Chicago, to take control of a pipe line unit.

The great oil field was still and black in the moonless void as Van Wyck raced along at three hundred miles per hour. His blood tingled to the scream of the wind in the struts, to the soft purr of the motor, to the black shadowed masses of the sleeping earth beneath. Tomorrow, by this time, if all plans worked successfully, the world would be in an uproar. The vast far-flung enterprises of oil, the vaster conglomerate of automobiles, navies, and countless industries totally dependent upon a smooth, continuous supply of oil, would be helpless, drifting, Van Wyck tried to vision the totality of it, and failed.

He shuddered. So much depended on this particular step. Failure now would be disastrous; even success might lead to destruction by enraged industry with all the mighty forces of the government to back them up. He did not try to conceal from himself the fact that they were outlaws now; by dawn tomorrow they might be the victims of the most ruthless and far-flung man hunt ever instituted by the nations of the world. Riot, revolution, anarchy, as the nation's mechanism beat with more sluggish pace, were in the cards too.

It was a desperate adventure, with mighty stakes. If they lost, they would die, execrated, maligned; if they won, they might or might not be hailed as the deliverers of mankind. There were too many incalculable factors involved. Van Wyck shrugged his shoulders unconsciously, and grinned to himself in the dark. He must not lose his nerve; there was work to be done.

At one-thirty promptly, he set his plane down carefully on the flat prairie lands of Kansas not eighty miles west of St. Louis. A pumping station was located a mile to the south. A light flashed three times from the window of a typical farm house not far away. Van Wyck took out his pocket flash, flicked the trigger, passed his hand quickly in front of the gleam three answering times.

There was the sound of footsteps. A hoarse whisper seemed to lift out of the darkness.

"Who goes?"

"Number one."

"Okay, Chief; we're all set, waiting for you."

Two dim figures turned and glided back to the darkened house. Van Wyck followed.

* * *

Midnight of April 5th, 1938. The American Petroleum Institute was in session again. But the circumstances were considerably different from that earlier, stormier session that Roode had interrupted. This was a huge banquet, to be exact, in the great Blue Room of the Hotel Waldorf-Astoria in New York. White diffused lighting beat upon what had earlier in the evening been spotless napery and gleaming crystal. Now certain dark red stains suggested unsteady fingers in lifting goblets to the numerous toasts. Soft-footed waiters deftly filled each glass as soon as it was empty.

It was a victory banquet, a love feast rolled into one. Stoneman wrinkled and leathery, seated in the chair of honor to the front of the vast room, looked startlingly out of place in his shabby, unpressed dress clothes, his head a death mask in that arena of conviviality. Not a smile flitted over his face as some particularly drunken oil man, obsequious to the super-Titan even in his intoxication, proposed another toast to that peerless, that honorable leader, Harry D. Stoneman.

On his right sat Wilmot, Secretary of the Interior, no longer worried and distrait; next to him was Chase, Attorney General of the United States. To his left sat his chief lieutenant, Merritt, President of Colorado Coal & Fuel.

The speeches were over; cynical reporters snapped shut their notebooks, wondering how the hell these big wigs got away with it, yet pleased at the thought of the sensational headlines over their stories in the morning editions. Already some of them had slipped out to telephone. The great presses were kept open for the full story.

Stoneman had announced in his wheezy whisper the results of the deliberations of the inner Council of the big oil men. The war in the oil fields was over. Those of the independents who hadn't been crushed had hastened to accept the ruinous terms of merger imposed upon them. Control of the entire industry was centered in the hands of five men. Stoneman, Merritt, and the respective heads of Texarco, Doremus and Saint Clair. Stoneman smiled comfortably to himself. Merritt was his creature, and he had certain holds on the Saint Clair man.

The first results of the combine had been announced this night. After the usual mouthfilling phrases of law, order, the good of the industry, the welfare of the United States, had been disposed of, the speaker had proceeded to the meat of the matter. Production was to be sharply increased; the world market to be flooded with sufficient gasoline at dumping prices to force world competitors like Royal-Dutch Shell, Anglo-Persian and Russian Oil to come to terms. But within the confines of the United States, safe behind high tariff barriers, a new price schedule was to go into effect tomorrow. The price of crude to be advanced to $1.40 a barrel; the price of gasoline to the consumer to go up three cents a gallon.

● At that, the assembled operators had cheered wildly. Whatever would be lost in the dumping war with foreign interests would be more than made up by the added increment on domestic products.

Secretary Wilmot had spoken favorably of the plan, largely on account of the possibility of our world domina-

tion in oil, and Chase had given the official blessing of the Department of Justice.

Stoneman should have been happy; the work of a lifetime was about to be consummated; yet he was not. True, rumors of the proposed deal had leaked out, and the *World-Dispatch*, only liberal newspaper remaining in the United States, had come out with a stinging editorial. Crowds of muttering, shabby people were congregated outside the sumptuous facade of the hotel, goaded to desperation by the prospect of further assaults on their pitiful incomes. But Stoneman had a vast contempt for the populace, and cordons of police were even now engaged in breaking a few heads to keep hungry men circulating.

Yet, for all that, Stoneman was distinctly uneasy. His whisper reached across Wilmot to Chase. That official was all attention.

"I am very much displeased with you, Chase," the oil man wheezed.

"Why?" gasped the astonished Attorney General.

"It's almost two months and you still haven't caught Roode and his associates."

Chase laughed deprecatingly. Inwardly he was annoyed. Time and again the oil man had forced his Department agents to renewed efforts in a fruitless hunt. Why not let sleeping dogs lie? The unconscious oil men had all recovered without any ill effects; the threats of the scientists evoked derisive laughter. He refused to take them seriously. As for the smashup of the Liquor Racket, they really had no proof that Roode and his associates were responsible. Only that list of Melchior's found in the Larkin Building raid after his disappearance, with a pencilled warning scribbled on it, and the curious apparatus found in Ribling's brewery with evidences of a hasty withdrawal.

Strange enough, but not sufficient evidence on which to hang a murder charge in a court of law. Besides, the Liquor Trust had it coming. He had not prosecuted—there were too many powerful influences at work—but as a conscientious official he had chafed at supineness in the face of obvious violations of the law of the land. This oil deal, now, was another matter. It was within the law; it would give the United States prestige abroad, and domination of oil supplies for our navy. The social implications left him indifferent.

"Come now, Mr. Stoneman," he said, "I wouldn't bother about them. No doubt they've skipped the country. Their threats—bah—you're not taking seriously the talk of a bunch of half-baked scientists?"

Stoneman shook his head grimly. "I do, Chase. I've taken the trouble to investigate, which is more than I can say for your Department. Every one named on Melchior's list is a scientist of international reputation. I know Roode and Harmon; Randolph too. They're men of considerable courage. Van Wyck too, has plenty of money to back them, and he is not lacking in courage either. I don't like the idea of these men camping on our trail. It bothers me."

"Two months have passed and we haven't heard a word more," Chase pointed out.

"That's what makes me more uneasy. I don't like this silence; it's too much like the deadly calm that precedes the storm. They are resourceful men, I tell you. The very fact that you've been unable to lay hands on them shows that."

Chase hid his inner rage. Was the old fool turned coward in his senility. His earlier career had disclosed no such yellow streak. Aloud he soothed: "If you feel that way about it, Mr. Stoneman, tomorrow I shall place every available operative on their trail. You may rest assured, if they are still in the United States, that I shall have them under lock and key within twenty-four hours."

Stoneman nodded absently. He did not think much of the Department of Justice. Strange thoughts seethed behind that death mask.

"Merritt," he whispered abruptly. "I'm leaving for the Seminole fields at dawn. Charter a fast plane for me."

Merritt looked at him in astonishment.

"But, sir, i-it's after midnight," he stammered. "You'll have no sleep. The excitement of tonight, the long journey will tire you. Can't it wait?"

"Don't be a fool," the old man whispered as he rose shakily to his feet. "Help me to my room and get busy with the necessary arrangements. You're coming too."

"Yes, sir," the President of the Colorado Coal & Fuel Co., said obsequiously.

CHAPTER IV

The Scientists Strike!

● Pump Station No. 96 on the great transcontinental pipe line from Tulsa to New York. The bleak plowed fields of eastern Kansas ghostly in the breath of an early spring. The slightest paling of the eastern sky, a long flat line showing the illimitable flatness of the prairie earth.

John Hornung, pump tender, yawned, stretched, looked at his watch, looked indifferently out of the window at the still darkness, yawned again.

Inside, the triple expansion steam pump pounded monotonously—thump—thump—thump—pumping the sluggish oil under nine hundred pounds pressure on the next leg of its long, transcontinental journey. Coils filled with exhaust steam nestled close to the main pipe line, heating the viscous oil to make it flow easier. Huge valves shunted the oil at will into a bypass for inspection. A man sat at a deal table, playing solitaire by the light of a single electric bulb.

Hornung got up, checked the valves, the various pressure gauges. Everything was functioning smoothly. He looked at his charts. The last of the Giant Well batch should be running through now; the oil from Painted Post was next on the line.

He turned the great valves, making a grunting noise. The other man did not look up from his solitaire. The pumps kept up their steady pumping. The oil was flowing now into the bypass, tremendously thick glass tubes. Greenish-black, dirty looking liquid coursed sluggishly through. He was in time then. Even as he watched, the liquor paled, thinned, ran water. He nodded in satisfaction, looked at his watch, looked at the pressure, noted them both down on his chart. The water slug had come through on schedule time.

Pipe lines carry the products of all wells from the area they tap. Each well pumps its product into the line, then a water slug is run in before the next well starts pumping. It is thus possible, knowing the diameter of the pipe, the time between slugs, the rate of pumping, to determine the exact quantity each well has produced.

John Hornung yawned again, sat down wearily across from his partner. "Still an hour before relief, Bill. God,

this job is darned tiring. Nothing to do but make a few checks during the night, and look out at the damned prairie. For two cents I'd chuck it, and get me a job where something happens once in a while."

"Forget it," said Bill, as he placed the last king on the last pile with an air of vast satisfaction. "Lucky to have any kind of a job these days. Here, I'll play you a hand of rummy."

"Okay." John hitched up his chair as Bill started dealing.

Wavering shadows dissociated themselves from the mist that lay over the prairie. They moved silently forward, pushing between them a tank on rubber wheels. It made no noise on the soft loam. Very quietly they crept up to the pump house, its black mass broken only by a feeble oblong of light. One of the shadows peered in at the window.

Bill had just spread out his hand. He had gone rummy. His face was agleam with the exultation of victory, and his lips moved in soundless phrases.

The shadow slipped back to the other shadows, nodded its head slightly. A hand reached for the knob, twisted sharply. The door flung open with a crash. The white mist flooded in to meet the yellow glimmer of the electric light, swirled in confused hesitation.

The two pump tenders turned startled faces, jumped to their feet. The cards scattered over the floor. The door framed a half dozen very solid-looking men, features shrouded in black masks. Guns trained unwaveringly on the frightened oil men.

"Wh-what's this, a hold-up?" Hornung managed to gasp.

Bill edged surreptiously toward the phone. If he could only manage to knock the receiver off the hook!

"Stay where you are," the masked leader said sharply. "You won't be harmed if you obey orders."

Bill relaxed. After all, life was worth more than the company's lousy pump station.

The leader motioned to two of his men. They came forward with stout ropes and carefully prepared gags. Within two minutes, the pump tenders were stretched out on the floor, skilfully trussed and gagged.

"You'll be all right," the leader said reassuringly. "Your relief is due in three quarters of an hour."

Then, while the pump men stared in astonishment, the invaders proceeded methodically to work. The steel tank was wheeled into the room. A long flexible hose emanated from one end, its tip was a wide flaring nozzle. An electric motor was attached to the rear of the tank.

The leader went swiftly to the pumping apparatus, shut it off. The machinery clanked ponderously to a halt. The stillness of early dawn flooded the room. Then he turned the valves that bypassed the oil. The tank was wheeled up, the flaring nozzle of the hose held flush against the outlet valve while it was being opened. As the oil started to gush slowly, the nozzle was clamped securely into place.

● Then the electric motor was started. It activated a tiny powerful pump of the plunger type within the tank, building up a pressure of two thousand atmospheres. The highly compressed monatomic hydrogen in the tank was forced into the bypass, and from there into the main pipe line.

Van Wyck started the pumping machinery again. The oil commenced flowing again on its long journey under the Kansas prairies, carrying within its bosom trillions of atoms of highly unstable gas. The nozzle was unclamped, and a small steel ball thrust deftly into the pulsing oil. It moved out of sight through the glass bypass into the main pipe line. Then the valves groaned back into position, and all was as before.

So quickly and so efficiently had the entire operation been performed that not more than a pint of the crude had been spilled on the floor, nor had more than five minutes elapsed. Not a sound was to be heard except the pumping ing of the machinery, and the sparking of the electric motor. The masked men switched off the motor, wheeled the tank out into the early dawn, and disappeared as silently as they had appeared.

To the astounded pump tenders the whole affair would have seemed but an unpleasant dream had it not been for the particularly realistic bonds that held them helpless.

The minutes ticked drearily away until six o'clock, when the relief stamped into the room. A long stare of astonishment, then the quick slashing of ropes. Long stuttering explanations from thickened lips. Close scrutiny of multifold machinery. There seemed nothing wrong; the triple expansion engine clanked steadily and the oil flowed thick and normal through the pipes. Report to Headquarters by phone of the strange hold-up. Company detectives and State troopers promptly notified, but nothing unusual noted. Hornung and Bill went home, feeling sorely put upon, wondering.

Then—about eight A. M. the pump tender at Station 97 phoned Station 96. His indignation sputtered and crackled.

"What the hell's the matter with you fellows?" he asked profanely of Hornung's relief. "Can't you keep your blankety blank pumps working without falling asleep on the job?"

"You're crazy. Pump's working O. K."

"Not a drop of oil's coming through. The pipe line's dry as a bone."

Headquarters buzzed with messages. Reports of mysterious raids on five great continental pipe lines, followed by sudden stoppage of flows. Regional Headquarters galvanized into fevered activity. Corps of guards rushed to pump stations; widespread search for the miscreants. No traces. Only certain abandoned farmhouses could tell the story.

Repair crews on the heels of the guards; to find pumping apparatus in excellent shape, but wheezing on strangely solid oil. A greenish compound of the hardness and consistency of wax. Superheating caused a slight melting, but the oil refused to move. Opening of the pipe lines at spaced intervals along the forty mile stretches disclosed similar conditions. From station to station the oil was a single unified solid! The coastal refineries could not get any more oil!

Van Wyck and the others had done their work well. The four-inch steel bomb contained a mechanism for emitting measured electrical impulses. A tiny time clock set it in motion within two and a half hours, giving the hydrogen-impregnated oil a chance to spread completely through the pipe. The impulses, conveyed through the outer steel piping, impinged on the highly unstable monatomic hydrogen and converted it instantly into normal molecular hydrogen. Tremendous heat energy was released in the process, which, coupled with the pressure, reproduced the conditions necessary for the hydrogenation

of an oil. The crude viscous fluid quivered, and became solid.

The idea was Peasley's; the little steel bomb the combined efforts of Roode, Peasley and Silversmith.

Frantic reports poured in upon the Oil Council's offices in New York. Reports of unparalleled disaster to the industry. The pipe line executives fairly spluttered. It would take a month to uncover the entire lengths of solidified pipe, and relay. Nothing else would help. But the catastrophic intelligence fell on already deafened ears. Other and more terrible news was pouring in.

"If only Stoneman were here," groaned the white-faced Texarko man to the half-fainting Doremus head.

But Stoneman as yet was in complete ignorance of the train of events. He was winging steadily westward by fast plane, unknowing of how his uneasiness had been more than justified.

● Dawn in the great Seminole area. Hundreds of gaunt steel derricks against a muggy paling sky. Silence, except for the low distant roar of a gusher that had just been brought in, spouting its mingled gas and oil high into the air, while sleep-drugged crews worked frantically to cap the well and control the geysering waste.

But in the immediate vicinity of the old Emily Well, silence. Watchmen dozed in their huts, dreaming possibly of an age when there were no automobiles, no black gold to pour out of the earth.

Within the high steel parapet, however, there was no sleep. Every man was on his toes, tingling with excitement, tense with expected fruition. Young Milburn could hardly control his limbs; he panted slightly. Only Harmon was calm, quiescent; he, who, ordinarily, was a fountain of grim, restless energy.

"Gosh, I hope it'll work," the engineer burst out for the hundredth time. Then, seeing the swift drawing together of brows in wearied annoyance, he apologized hastily.

"I'm sorry, sir, but this is a big thing we're doing, and —and—"

"If it doesn't come off, a lot of people will be going to jail for life," Harmon completed for him. "I know; but don't worry. It *will* come off. Every man at his post?"

"Yes, sir."

Harmon looked at the phosphorescent dial of his wrist watch. Five A. M. Zero hour! At the same moment Roode in the Panhandle of Texas and Randolph near Long Beach were moving into action.

Harmon hurried to the mouth of the well. The regular drills had been taken out of the deep hole; a cast iron casing was sunk in their place, completely sheathing the orifice. The right angle shaft beneath was similarly sheathed. Its end, leading directly into the gas area, was capped by a gate valve that could be opened from above. Insulated wires ran down the length of the casing to connect in the ferrous bedrock as a broadcasting unit. The casing did not end at the mouth of the well; it made a right angle turn and continued along the ground to gigantic reservoirs.

Harmon took a final look around. Men waited at their posts, immobile. He stepped back and said curtly: "Current!"

High speed generators started humming softly in the power house. Blue flares danced momentarily across the dawn gloom. Deep in the bowls of the earth the current sparked across insulated tubes, and waves of extreme shortness pulsed through impervious bedrock and overarching caprock, through saline waters and wet gas. The short waves were ionizing the vast volumes of gas underlying the whole field!

Then Harmon said: "Charcoal."

At once huge compression pumps started forcing one thousand tons of dry powdered charcoal, specially activated, out of built-in storage tanks through the casing into the well, along the right-angle casing. The gate valve slid open and the superior pressure of the onrushing charcoal powder blew it deep into the light gas sands against the back pressure, forcing it further and further into the strata until the initial impulse had been exhausted.

Once more Harmon spoke: "Dynol!"

Milburn pressed a button. In the bowels of the earth, at carefully planned strategic points, capsules of dynol, the tremendously powerful explosive discovered by Peasley, detonated with a muffled roar. Up at the surface the ground trembled slightly, but Harmon knew that the explosions must have been terrific, setting up miniature earthquakes in the solid bedrock, lashing the bottom water to storm-tossed fury, agitating the entire oil-soaked strata, churning the gas sands and free gas into veritable whirlpools. A seismograph was at his side. The needle jumped erratically, showing the intensity of the subterranean convulsion. A stylus traced the peak of the earthquake, and stopped. The cylinder kept rotating on its clockwork mechanism. All was quiet. Then a faint rumble, and the stylus started moving again, a pale simulcrum of the original convulsion.

Harmon nodded his satisfaction to Milburn.

"That was the rebound from the external limits of the pool; the echo, so to speak. The time difference tallies with what we know of the area of the Seminole district. Our artificial earthquake was one hundred per cent effective; it must have driven the charcoal throughout the geologic pool, mixed oil and water and gas in one vast churn."

Milburn was excited but doubtful.

"The theory is all right; I hope it works."

"It must. There is no guesswork about it. The induced earthquake mixed all three elements together. That in itself would account for a vast absorption of the gas in the other two elements. Then the short waves, shorter than anything known before, ionized the gas, rendering it more amenable to absorption. And the powdered charcoal, activated a hundred fold by Grace's process, occluded what was left of the gas area.

"Now you know as well as I that over eigthy per cent of the wells still depend on the natural gas pressure to force their oil to the surface. This is a comparatively young field, and very few operators have installed pumping machinery to supplement gas pressure. It was not necessary. Look at that gusher that came through only yesterday.

"But with most of the gas absorbed or occluded, the gas pressure of course eases off. Remember, we didn't have to account for all of the gas. Drop the pressure inside the earth from its normal five hundred pounds per square inch to below two hundred pounds, and the reduced pressure will be sufficient to stop the flows. That leaves less than one-fifth of the wells—those with pumps—still working, and even they depend in large measure on the added pressure help."

"But couldn't all the operators install pumps?"

Harmon laughed grimly. "It would take at least two months and some twenty millions in equipment for this area alone. And Roode and Randolph are busy too."

"The wells will work again in a week in any event."

"Certainly," Harmon agreed. "But the operators won't know that. They won't even know what happened, or how. All they'll see are seemingly dry wells, permanently so, as far as they are concerned, and billions in investment going up in thin air. What with this, the pipe lines out of commission, the refineries sabotaged, they'll become panicstricken. Even if they don't the nation, visioning stalled motors, idle ships, tobogganing industry in already troublous times, will clamor for action."

"So that it is all a bluff."

"Call it that. We must announce our terms and gain acceptance within a week or two. By the end of that time the roiled elements will have separated, the gas lost its electric charge, and the charcoal given up most of the occluded gases. Pressure will rebuild, and the wells start functioning again. The pipe lines would take a month to fix, unless they know our secret; the refineries a matter of a week at the most to clean out. Yes, it is a bluff, but with the cards stacked in our favor."

Young Milburn almost danced in his excitement. "Golly, it's tremendous. How soon will we know if the plan works?"

Harmon smiled at the youngster's exuberance.

"It will take at least an hour for the effects to be felt here; within the next hour or two reports should be in from all units."

CHAPTER V

Ultimatum!

● Redman, boss foreman for Standard Petroleum, chewed his unlit cigar savagely. His bellow rose above the roar of the column of mingled oil, mud, water and gas that was shooting one hundred and fifty feet into the air.

"What are you," he raged, "oil men or bond salesmen? Here, you, Jones," he shouted to a blackened, oil-drenched individual slogging by in the ankle-deep sludge.

"Yes, boss."

"Why in hell ain't that gusher capped yet? A hundred thousand dollars' worth o' good oil going to waste. Dragging me out here in the middle o' the night because a parcel o' blankety blank fools can't even wipe their noses without a nurse."

"Sorry, but it aint our fault. We didn't expect 'er to shoot for another day yet. And the pressure down there's so high, it's blowing every cap we're shoving on her as fast as we put 'em on."

"Bah!" Redman snorted. "Trouble with you is you just don't know. I've capped ripsnorters to which this baby is a puling lamb. Come along, I'll show you."

With that he bent his head against the blasts of sulphurous vapors and pushed forward as well as he could through the oil-running muck. The capper followed obediently, with bitterness in his heart.

An uncapped gusher is an awesome sight. The roar of the gas shooting up out of the bowels of the earth, the black vomiting eruption rising to majestic heights and dropping back with resounding splash, the ever-present danger of a spark, friction, anything, igniting that tremendously inflammable mixture, the stench, the tiny human beings swarming excitedly in an oil-drenched atmosphere, all make an unforgettable picture.

But pictures meant nothing to the hard-bitten foreman. He was there to cap exuberant nature, force it under control, save uncounted thousands of dollars. He met a crew advancing bravely into the roaring smother with a new four-way section. The bolts of the old one had ripped clean out of the casing.

"Give me that," he shouted.

As though his voice had some magical effect over the elements, there was a quieting of the vast gusher. The rushing noise softened to a rumble, the stream wavered, dropped to fifty feet, shot up again to one hundred, trembled uncertainly at the peak, and dropped back in slow recessions until it was a mere bubbling spring oozing out of the tortured earth. Then even that ceased, and the gusher was a thing of the past.

Redman stared in bewilderment, looked absently at the heavy section he helped support, dropped it with a resounding splash into the muck.

"Well, I'll be damned!" he stated with great fervor. "Jones, did you ever see the like?"

"Nope."

"A ten thousand barrel gusher, if there ever was one, drying up before you could say Jack Robinson!"

"Maybe it was only a pocket."

"Naw. No pocket ever shot that high."

They approached the mouth of the casing and peered down. Nothing—no sign of the precious oil that had emerged only moments ago in such reckless profusion; only a Stygian hole in the ground.

Redman scratched his head painfully.

"I'm going to the field telephone to call up Headquarters. They'll fire me sure when they hear this story."

But Redman was not fired—not just then at any rate. For Headquarters was being literally swamped with similar frantic reports. Even the pump wells were able to bring up only thin trickles. The Seminole district had gone suddenly, inexplicably dry!

It was in the midst of all this hullaballoo that Stoneman and his lieutenant, Merritt, alighted from their plane. It was noon. The field managers almost sobbed their relief at the sight of the frail, leathery old man. His feet had hardly touched the oozy earth before he was deluged with reports of disaster. Every moment the transcontinental wires brought in new tales of spreading destruction. The oil industry had ceased operating.

Not only the Seminole area, but the California fields and the Panhandle were dry. The sullen earth refused to yield its liquid treasures. The main pipe lines were plugged with a solid waxy substance for unknown distances. And now, to cap the climax, even as Stoneman listened grimly to excited tales, came more reports, veritable wails of anguish.

The great refineries were out of commission! Something had happened simultaneously to all of the "cracking" stills. Anhydrous aluminum chloride was universally used as a catalytic agent in the gasoline "cracking" process of the time. The batches of the pure chemical had been carefully prepared as usual that morning, run into the heavy oil stock, and heated as always. Almost immediately things went wrong. Instead of "sweet" gasoline boiling to the top within the stills, and the aluminum chloride forming a sludge with the impurities at the bot-

tom, to the unutterable horror of the plant managers, the mixtures began slowly to harden until the stills were a solid, sticky, clayey mass.

It would take from a week to a month to tear down the tanks and get rid of the mess. Yes, samples had been analyzed. It seemed to be *kaolinite*, hydrated aluminum silicate, though how the silicon compounds had managed to get into the stills had the plant managers running around in circles. Had they taken on any new men recently? Why yes, they all had. Within the past two weeks. Come to think of it, almost all were laborers who claimed expert knowledge of the aluminum chloride process. Where were they now? Hold on a minute. Sorry, they seem to have disappeared,—the dirty so and sos!

● "Sabotage!" Stoneman said wearily and refused to listen to any more. He turned to his panic-stricken field men. Already the other three members of the inner Council were winging westward from New York in answer to his urgent summons.

"I suspected that Roode and Harmon and their crowd were going to strike, gentlemen, but I never dreamt it would be so disastrous. There's no question of course about their complicity. Those laborers in the refineries were secret agents who managed to dump silicon compounds into the tanks. Just what they are, our chemists will be able to tell us.

"That's ordinary, understandable. The pipe lines were raided, something forced into the soil, a little steel mechanism too, that somehow solidified the liquid for miles. I've been in touch with our scientific Board and they are at a loss. We come now to something that begins to smack of the superhuman; the sudden stoppage of three great pools. No doubt about it; it's part and parcel of the same plan. But how could it have been done, and from where?"

The befuddled oil men looked at each other blankly. It was all completely over their heads. Stoneman looked around the silent gathering with withering contempt. He could expect no help from them, from anyone. The whole vast problem rested solely on his aged, sagging shoulders.

There was a little commotion in the outer office, the sound of arguing voices. Stoneman frowned: "Go out there, Merritt, and tell them to keep quiet."

The powerful President of Colorado Coal & Fuel obeyed meekly like any office boy.

He came in again. "It's two oil boomers they took on last week at No. 53," he said. "I told them to go away, but they insist on seeing you. Something important, they claim."

Stoneman looked thoughtful. "Let them come in," he said abruptly.

Two lanky oil boomers, dressed in oil-stained khaki, faces smudged, walked nonchalantly into the room. They seemed totally unimpressed by the presence of these high and mighty officials.

"What have you to tell me?" Stoneman whispered in his aged, weary voice.

Joe Tuttle looked at him with faint surprise.

"You Stoneman?"

The oil overlord passed over the *lese majesté*.

"Yes."

"Waal," drawled Joe, comfortably shifting his quid from the right cheek to the left. "It's thissaway. Tom, that's my pardner here, and me, came wandering up from the South into this territory some two, three weeks ago, a'looking for work. We're purty good oil men in a pinch."

"Come to the point, man," Merritt said sharply.

Joe grinned. "Waal, anwhow, the first place we stop at's the old Emily. Tom, he worked on her drilling two years ago afore the company gave up. They never struck oil. Yet here she was, jus' plumb full o' men and equipment, an' a high steel fence round her so you couldn' see what's goin' on inside. Tom knows an' I know there aint no oil in that hole, but if suckers want to work her, an' pay us, we're willing. But a couple o' wise guards with forty-fives chase us off the lot as if we were poison." He paused and squirted a thin stream of tobacco juice clear across the polished floor.

"Well, what about it?" Merrit asked impatiently.

"It just wa'nt natural."

Stoneman hobbled to his feet, his withered features glowing.

"You're right, man. It wasn't. Merritt!"

"Yes, sir."

"Get Storm, Chief of Police. Get Morris of our Aviation unit. Get Washington on the phone. Speak to Chase and Sturtevant of the War Department. Tell them we found the criminals responsible. Have them turn out every available unit and rush them here. We need protection. Don't stand there like a graven mummy. Hustle!"

He was a fountain of driving energy. His years seemed to drop from him; once more he was the ruthless, dynamic individual who drove through to the top in a highly ruthless, cutthroat industry.

He scattered his subalterns like sheep with a whirlwind of snapped orders. Telephones hummed with hurried messages, men dashed in and out of the office like mad. Within an hour the oil police, an efficient force of two hundred men, were lined up, fully equipped for battle, a dozen machine guns included in their armament. Overhead five bombing places hovered, ready for radioed orders. Washington had spurred into activity. Detachments were converging on the beleaguered areas.

"All ready, sir," Colonel Storm reported.

"Good. You're to investigate the Emily well. Have the bombers fly over it and cooperate with you. At the first sign of hostility, shoot—and investigate afterwards."

"Very good, sir." Storm turned smartly on his heel. Outside they could hear his barked orders; the tramp of many feet.

"Help me to the car." Merritt promptly offered his shoulder.

● The attack on the suspect Emily was conducted in approved battle style. The oil troops came to a halt five hundred yards away, spread out in skirmish formation, unlimbered their machine guns. The bombing planes zoomed high overhead, reporting to Storm below. There seemed no sign of life within the steel enclosure.

Yet so wholesome was the respect for the scientists supposd to be hiding within that Storm advanced his troops very cautiously. The planes were to bomb the well only on signal. After all, it might be a quite innocuous outfit, and wholesale destruction and murder might have repercussions.

Still silence from the enclosure in the face of all this

martial activity. The place seemed deserted. Storm was a brave man; he advanced alone. Guns trained on the walls, ready to fire. He stopped at one hundred yards, cupped his hands, and shouted. Nothing happened.

He took heart and went nearer. The planes zoomed lower. At fifty yards he paused again, uneasy. There seemed to be a faint sparking sound beneath his feet. He didn't like that sound. Storm was a brave man, but he was not foolhardy. He turned and walked back to his command as fast as he could, comportable with dignity. Thereby he saved his life.

For suddenly there was a great explosion of sound. The earth rocked up to hit him; a great geyser of twisted iron, wooden logs, earth and stone rose high into the air. A huge volume of thick black smoke rushed after. Then for minutes the sky rained fragments. Half a dozen men were hit; fortunately no one was seriously injured.

When the booming concussion died down and the air cleared of flying particles, there was only a deep hole where the Emily well had once been. Nothing in the mass of twisted junk that remained could tell anything to the most searching eyes.

A dozen miles away an idly circling plane decided to go places. A depressed button on the dashboard, not a minute before, had sent out controlled waves through the ether that found the tiny pulsing apparatus buried in the ground encircling the well, and sparked them into ignition. One hundred pounds of dynol detonated.

Harmon put away his telescope, chuckled grimly.

"They may suspect anything they wish," he said to Milburn as the plane rushed onward to the Maine coast, "but proving it will be another matter."

That afternoon, the country, the whole world was in an uproar. Newspapers screamed their headlines. "TECHNOCRATS START THREATENED REVOLUTION. OIL INDUSTRY DESTROYED. PRESIDENT MASSES TROOPS."

At Washington there were hurried conferences, all that day and the next Stoneman and the Oil Council were closeted with the President and his Cabinet. Prominent Senators sat in, so did bankers and leaders of industry. Stoneman was frothing at the mouth. Feverish excitement made his voice stronger than ordinary.

"What sort of government have we? Why don't you do something? What's the Army and Navy for if those damned Technocrats can paralyze a gigantic industry with impunity? It's Revolution, I tell you!"

Wilmot, Secretary of the Interior, smiled inwardly. Stoneman was changing his tune; not two months ago he frothed at the mouth at the very thought of government interference; now he was demanding, imploring. But he said nothing.

Sturtevant spread his hands helplessly.

"We've done everything we could," he objected mildly. "Every oil area, every refinery, every pump station on the pipe lines, is under guard. Every available man is searching the country for the scoundrels."

"They're smarter than you are," Stoneman sneered. "You'll never catch them. What are we going to do in the meantime? Our best areas produce no more oil; even if they did, the pipe lines are out of commission for over a month; and the refineries couldn't refine the crude even if we did get it through."

"What do you want us to do?" asked the President somberly.

"Do?" echoed Stoneman. "I want the Government to take over the Seminole, the Panhandle and Long Beach districts, and pay us our book valuation for them. Then we want payment for the damage done, and complete freedom from government regulation on our other properties."

There was a gasp at the colossal effrontery of the demand.

The Secretary of State rose violently to his feet, his black beard quivering. He was known as a forthright man.

"This is the most impudent proposition I've ever heard—"

"Nonsense," the oil man interrupted brusquely. "Whose fault is the whole affair? The government's. None of you would take me seriously when I warned you months ago that these Technocrats were dangerous, determined men, with plenty of money to back them, and more science at their control than the rest of our nitwits put together."

He glared around the tense circle. "You've seen what they can do. This is Revolution, I tell you again. Do you think they will be content with stopping at the oil industry? Of course not." He shook a bony finger at the bankers, the big industrial chiefs. "They'll go after you one by one. Remember what happened back in '34."

CHAPTER VI

Another Victory!

● The big men blanched. They remembered only too well that time of revolt and bloodshed. Technocracy, which they had thought laid forever, was rising phoenix-like, to trouble their sleep once more.

"Stoneman's right," said Gerry, head of the Steel combine. "This is a matter that involves us all. The Government *should* reimburse him for the damage, take steps to squelch this thing once and for all."

The President's face clouded. He was about to say something caustic when the door opened, and Bisbane, Amalgamated Press Chief, broke in on the conference. His sallow cheeks were aflame.

"There's a message, Mr. President, on the radio. You had better tune in."

His eye lit on the grille of the built-in set. Without waiting for permission, he half ran over to it, twirled the dial.

A voice filled the council chamber with its calm tones. It was Adam Roode's voice, broadcast from a lonely mountain side in the Rocky Mountains, cutting across all wave lengths, filling every loud speaker in the country, no matter on what station it was set.

"This is Adam Roode, Technocrat," he said over and over again. "Please clear the air for important message to the world."

The President jumped to his feet, gave swift orders. Obediently every broadcasting station signed off, leaving the ether free to the outstanding criminal (from Stoneman's point of view) of the generation.

"This is a statement from the Council of Technocrats, of which I have the honor to be Chairman," Roode commenced. "Two months ago we requested control of the oil industry. It was the most flagrant example of stupid management and stupendous waste of any of our horribly

inefficient industries. Furthermore, its purposes were definitely anti-social. To enrich the swollen coffers of Stoneman and his crowd, our natural resources were being dissipated at a rapidly accelerating pace. Nor did the common man, the consumer, benefit. He paid the tolls.

"We were refused, our proposals greeted with scorn, ourselves hunted as wild beasts. We waited. Two nights ago, the oil men, drunk with success, initiated a program that would have meant disaster within six months. Heavier burdens upon an already staggering country, war with the enraged nations of the world on whom Standard Petroleum intended to dump excess products.

"Something happened. A strange series of events put a stop practically to all production. How it happened we do not know, nor do we care particularly. There will be no more talk of dumping. There is no oil to be had. Possibly, if the gentry prove stubborn, the same series of events may close all other sources, in spite of massed guards.

"How long can the country exist without oil? Present stocks are limited; within a week they will vanish. Then —the deluge? I do not need to paint a picture; every sensible man can fill in for himself. We, the Council of Technocrats, are the only ones who know how to start the flow of oil again, smoothly, efficiently, with planned, controlled production, planned distribution, for the benefit of the nation at large and not for the benefit of a few men.

"We expect an answer from the President of the United States and from Stoneman within three hours. We know they are in conference. The reply may be broadcast from WEAF. Good-bye."

The calm matter-of-fact voice broke off abruptly.

The conference was on its feet, in the excited Babel of sound. Every vein bulged alarmingly on Stoneman's sere forehead.

"Find him, Mr. President," he whispered. "Now's your chance."

The President turned grimly. He did not like Stoneman particularly, but these Technocrats were challenging the majesty of the government itself.

"I've already started the wheels in motion," he said. "A half-dozen scattered stations have direction finders tracing the source of the broadcast. Ah, here's the result now. What luck, Leonard?"

The question was addressed to a keen-eyed young chap who had just entered.

"We've located it, sir." He spread out a map on the long table. A tiny red circle was drawn around a lonely mountain peak in Rocky Mountain National Park. "That's where it came from."

"Good!" said the President. "Sturtevant, see to it that planes from the nearest field break all records in getting to that spot. They are to capture Roode—alive! Do you understand?"

"Yes, Mr. President. Denver is the nearest airport. My planes will be there in less than an hour."

He picked up a phone . . . . . .

But Roode was not obliging enough to wait. Piloted by McCarthy, the portable all-wave broadcasting unit snug on board, he was also speeding eastward to the Maine coast.

● The studios of the National Broadcasting Company at Washington were crowded. Troops lined the approaches to the building, kept the vast, seething mobs at a respectful distance. Within, the air was surcharged with electricity. The President and his Cabinet were present, so were many others high in politics and in business. Within a glass-enclosed chamber, soundproofed, Stoneman, more aged, more leathery than ever, was standing before a microphone. All eyes were upon him; all hearts beat rapidly. He alone seemed calm.

The announcer saw the red light flash, nodded silently to the oil man. The air was clear for his reply to the challenge of the Technocrats.

His voice at first was low, but it gained in volume as he went along.

"To the criminals who term themselves Technocrats," he said. "You have tried to crush a great industry; you have screamed defiance to the greatest nation on earth. You plot red ruin and anarchy; bloodshed and murder. This is our answer—the answer of every decent and honorable citizen to your preposterous proposals. No! *no!* a thousand times NO! You will be crushed by the nation's vengeance, your bodies shall dangle from a hundred gibbets."

He ceased, and in hundreds of thousands of homes, intent upon their loudspeakers, hungry men turned to patient, wan wives; slow anger welling in their hearts, trembling for utterance on white lips.

But the loudspeakers were blaring again, so close on the oil man's defiance it seemed almost a continuation. Roode's voice, calm, matter-of-fact.

"Very well, Stoneman, I did not expect otherwise from you. I appeal to the people, the same decent citizens whose name you arrogate to yourself. Technocracy calls you to arms! Our battle is your battle! The oil wells are dry; others will follow suit; only we can start them again. The time has come for you to act!"

And the nation acted. Low sullen sounds that gained until they became battering roars beat upon politicians and industrialists alike. Once more the dread banners of Technocracy, long hidden under heavy penalties, appeared magically in the land. Bands of determined men started on the march once more for Washington, gaining snowball accretions on the way. There were riots, some bloodshed. Oil men went in fear of their lives, surrounded always by strong guards.

Men worked frantically on the pipe lines; their progress was slow. Hastily assembled geologists, mining men and technicians investigated the dry areas; probed, tested, proposed remedies. Nothing worked. At most the oil barely trickled to the surface, tens of barrels where there had been thousands.

Every day the Oil Council sat in session, listening to reports, planning futile campaigns against an invisible enemy. Nothing more had been heard from the Technocrats since that last radio appeal, but the silence was ominous. The Council remembered the last interval of silence. Texarko and Doremus were weakening; they were frankly afraid; but Stoneman was granite-like in his obduracy. Merritt and Saint Clair voted submissively along with him.

It was the fifth day. The country was a seething rioting mob. Oil supplies were being rationed out now; there was considerable hoarding by shrewd speculators with an eye to the future. The automobile industry was raising

loud cries of anguish; sales within the week had fallen to a fraction of their former volume. Other industries, hit hard by the scarcity of oil, added their voices to the clamor. Still producing areas were worked to capacity; every available tank car and steamer was pressed into service; the small refineries ran day and night. But their production was not enough, and the psychologic effect was possibly even of more importance than the actual scarcity.

Well hidden in their sanctuary on the Maine Coast, the Technocrats waited. It was the fifth day, and there was no sign of the enemy yielding. In another two or three days the gas pressure would have built up in the devastated areas, and the oil would start bubbling forth. Even if they managed to elude the strong guards in other districts to halt production, the chief weapon in their favor, the mystery of seeming unlimited power, would have been destroyed. They could never win with those tactics again.

The oil situation in the United States had become a matter of world-wide importance. Foreign nations made it the subject of diplomatic representations to the President. Anglo-Persian, Royal Dutch, Russian Oil, were speeding great tankers under forced draft to the American shores. Lift the prohibitive tariff on oil, was their song, and the country need have no fear of an oil famine.

Congress, or at least certain progressive elements in that body, seized on the situation with avidity. Senator La Borette introduced a special measure to remove the tariff on oil. And such was the temper of the nation that even members from the oil-producing states dared not vote against it. The bill had received unanimous consent for a quick hearing, and it was coming up for final roll call on the sixth day. Outside the three mile limit, a hundred foreign tankers hovered, waiting for the passage of the bill to dump their cargoes on American shores. Paunchy directors, elegant diplomats in the foreign capitols, rubbed their hands in glee. The tables were being turned with a vengeance.

● That, more than anything else, broke Stoneman's resistance. He saw with awful clarity that once the tariff was lifted, it would stay off. The industry had been built on the basis of prohibitive protection. Remove that wall, and the whole house of cards would collapse. Even a low interest return on a straight technologic valuation, as the Technocrats promised, would be better than nothing.

On the morning of the sixth day he appeared in the broadcasting studios. The first of the marching bands was already at the outskirts of the capitol, sweeping half-hearted police opposition out of its path.

Stoneman's voice was no more than a weary whisper.

"We accede to your proposition," he breathed into the microphone. "The Oil Council is prepared to meet you and discuss terms."

In the depths of the Maine woods strained faces suddenly smiled. Famous scientists clapped each other on the back; Cornelius Van Wyck and Peter Dribble, by right of their youth, executed an intricate dance of triumph. Roode, eyes glowing, switched on a special microphone, spoke in answer. It broadcast on a tight beam to a rebroadcasting unit hidden on the slopes of the Laurentian Hills north of Quebec, there to be transmitted on a universal wave length. They were taking no chances on treachery; on direction finders being used.

"It is well. We shall require Stoneman as representative of the oil interests, and Secretaries Wilmot and Sturtevant on behalf of the government to treat with us. All parties must have plenary powers. You are to proceed by plane to the top of Mount Whiteface in the Adirondacks. At 6 P. M. you will be picked up and conveyed to your destination. You need have no fears as to your safety. But we must insist that you be absolutely alone. Any attempt at treachery or surveillance will only recoil on your own heads."

The great stratosphere plane drove silently toward the Adirondacks. McCarthy was at the controls, his reckless Irish face beaming with broad satisfaction. Van Wyck was the only passenger, humming a little air. He broke off.

"Expect any treachery, Pat?" he asked hopefully.

The pilot grinned. "I honestly think you're spoiling for a fight." Then he sighed. "I'm afraid everything will be peaceful. Stoneman's pretty well tamed. Here we are."

Whiteface loomed in the distance. Lake Placid was a shining irregular curve in the setting sun; Mirror Lake a tiny pool to the left. McCarthy threw out the helicopters and the huge plane sank slowly to the rounded, rocky peak. Van Wyck raked its bare surface with powerful glasses, his left hand resting on the machine gun trigger in case of trouble.

But everything seemed all right. Three tiny figures were staring up at them; there was no cover for hidden marksmen. As for possible pursuit planes, Pat wasn't worried. There wasn't a flier in the world that could follow him.

Van Wyck did the honors. He welcomed the three slightly bewildered men into the cozy cabin, and the plane took off immediately.

Sturtevant looked strangely at the pilot. McCarthy had been an American ace during the war.

"They said you were mixed up in this," he said slowly, "but I didn't believe it."

"Why not?" grinned the Irishman. "This is more fun than killing Germans or carrying mails." To which of course there was no answer.

"I'm sorry, gentlemen," Cornelius broke in, "but I am compelled to blindfold you. Our destination must remain secret."

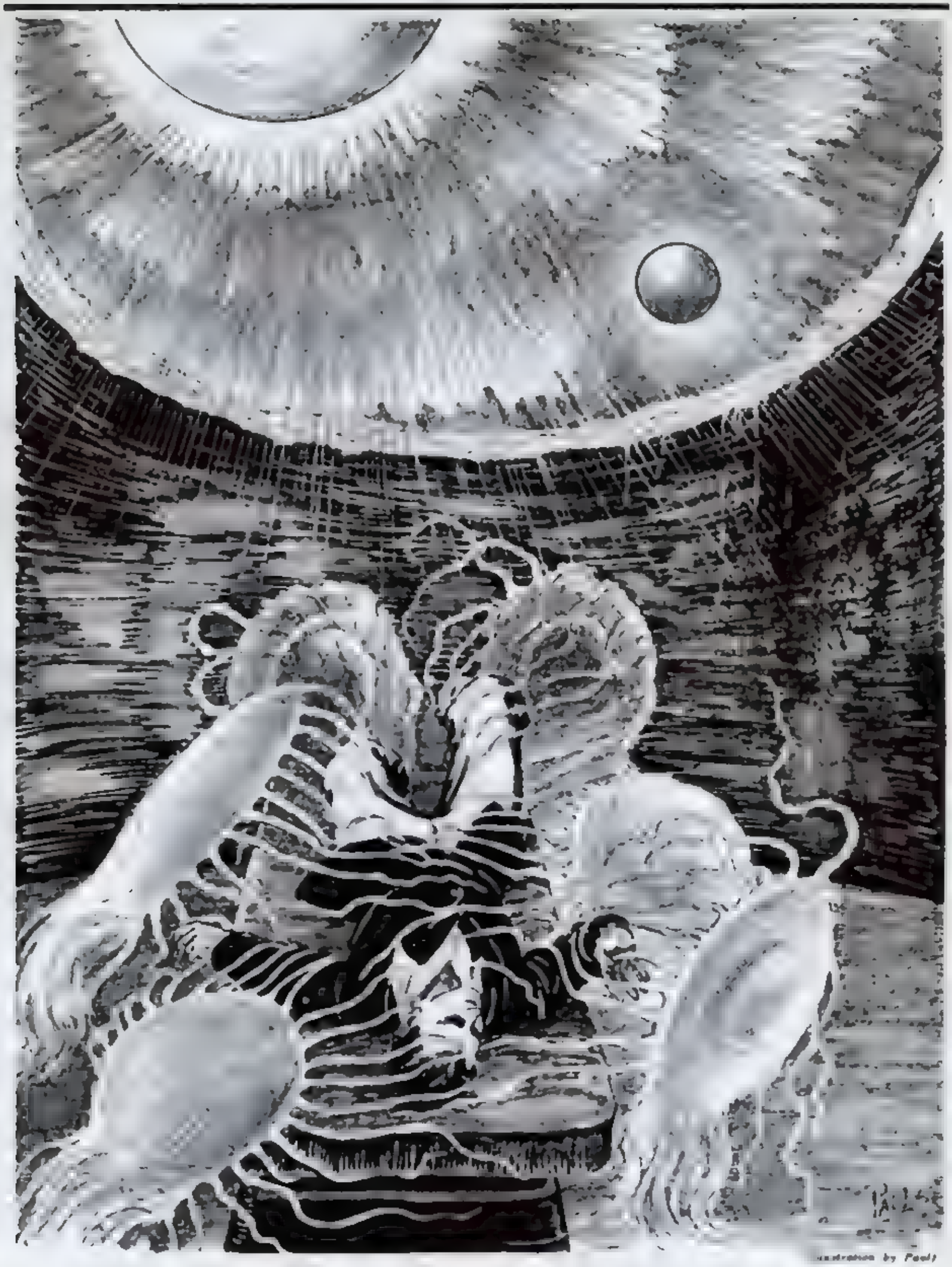
The three powerful men looked at each other. Wilmot shrugged. "I for one am not here to spy, but I suppose you are justified."

The Council of the Technocrats was in session. The full membership sat around the great, soundproofed assembly room. Not even the roar of the waves could penetrate here. The three emissaries had been led in, their eyes unbandaged. The sound eliminator had been deliberately cut off as they neared the coast so that the pounding of the motors, the whir of the propellers, would mask the betraying surf.

Stoneman looked at the assembled scientists with open bitterness; Wilmot and Sturtevant with curiosity. These then were the men, pitifully few in numbers, who had successfully brought a powerful industry to its knees, who had defied the full might of the United States.

It is unnecessary to go into the complete story of the intricate negotiations, hastened on the oil man's part by fear of the pending tariff bill; on the Technocrats' by

(Concluded on page 985)



Sarkis lived in aching torment, whose duration was not to be measured by earthly time. The red sky appeared to descend upon him, heavier and closer. . . . .

THE VISITORS FROM MLOK

By CLARK ASHTON SMITH

● Clark Ashton Smith carries on his series of bizarre yet realistic stories of the experiences of men upon strange worlds. He does not stop, as many authors do, at picturing strange houses and different social customs. He goes much further and pictures the actual difference in sensations—sight, touch, hearing, etc.—that we might experience on new worlds.

Tho world of Mlok might possibly exist, we do not know. But Mr. Smith shows when he pictures it, that everything we see and feel and touch, and accept as normal, is after all, only relative to what we have been accustomed to. And to another being, with different sense perceptions, our "normal" things might be horrible and disgusting.

● It was on Spanish Mountain, where he had climbed from Donner to escape the society of his fellow-campers, that Lemuel Sarkis first met the people of the planet Mlok.

Since he was far from being an expert mountaineer, he had not cared to assail the crowning peaks of the long, somber ridge, but had contented himself with the lower, more accessible eastern terminus. From this, he could look down on the waters of Frog Lake, lying dark and still at the bottom of a bare declivity.

Among volcanic-looking boulders, well out of the wind that swept the upper ridge, he seated himself in morose contemplation while the mountain shadows lengthened, shaken out like lazy wings, and a pale light crept eastward on the waters of black opal below. The vastness of the solitude, its grim and craggy grandeur, began to have a soothing effect upon Sarkis; and the human trivialities and banalities that had driven him to flight assumed their proper insignificance in the mighty perspectives on which he peered.

He had seen no one, not even a sheepherder or fisherman, in his climb through the forested ravines and up the sun-flower-covered slopes. He was startled as well as annoyed when a pebble loosened as if by some unheard footfall clattered past him and went over the precipice. Someone else had climbed the mountain; and his misanthropic aversion rose in a gall-like bitterness as he turned to survey the intruder.

Instead of the tourist or mountaineer he had expected, he saw two beings who bore not even the remotest appearance to humanity, and, moreover, were obviously unrelated to any species of earth-life. Not only for that first startled moment, but during the entire episode that followed, Sarkis wondered if he had fallen asleep and had been visited by some preposterous dream.

Each of the beings was about four feet high, with a somewhat doubtful division into head and body. Their formation was incredibly flat and two-dimensional; and they seemed to float rather than stand, as if swimming through the air. The upper division, which one accustomed to earthly physical structures would have taken for the head, was much larger than the lower, and more rotund. It resembled the featureless disk of a moonfish, and was fringed with numberless interbranching tendrils or feelers like a floral arabesque.

The lower division suggested a Chinese kite. It was marked with unknown goblin features, some of which may have been eyes, of a peculiarly elongated and oblique sort. It ended in three broad, streamerlike members, subdividing into webby tassels, that trailed on the ground but seemed wholly inadequate for the purpose of legs.

The coloration of these beings baffled Sarkis. He received alternate impressions of opal-shot blackness, elusive greyness and blood-bright violet.

Impossible, beyond belief, they hung before him among the rocks, swaying forward with a dreamy slowness, as if attached to the ground by their tasseled streamers. Their fringes of woven tendrils seemed to float toward him, quivering with restless life, and certain of their eyelike features gradually brightened, and drew his gaze with the hypnotic gleaming of crystals.

The feeling of divorce from reality increased upon him; for now he seemed to hear a low, insistent humming, to which he could assign no definite source. It corresponded vaguely with the slow vibration of the fringes in its beat and cadence. He heard it all around him in the air, like a mesh of sound; and yet somehow it was inside his own brain, as if the unused cells were thrilling with a telepathic murmur from worlds unknown to man.

The humming grew louder, it took on a partial coherence and articulation, as if certain sounds were repeated over and over in a long-drawn sequence. Still more articulate it grew, seeming to form a prolonged vocable. Startlingly it dawned upon him that the vocable was intended for the English phrase, "Come with us," and he realized that the beings were trying earnestly to convey an invitation by means of unearthly vocal organs.

● Like one who has been mesmerized, without fear or wonder, he gave himself up to the impressions that besieged his senses. On the flat, vacant, moonfish disks, very gradually, dim, intricate lines and masses limned

themselves, growing brighter and more distinct till they began to suggest an actual picture.

Sarkis could comprehend little enough of what he saw; but he received an idea of immense distance and alien, distorted perspective. In a blare of exotic light, a sea-like flood of intense color, strange-angled machineries towered, and structures that might have been either buildings or vegetable growths, receded on a ground of baffling dimension and doubtful inclination. Through this baroque scenery, there floated forms that bore a slight and incoherent resemblance to the beings who confronted him: a resemblance like the broken hint of natural shapes maintained in the utmost perversions of cubism. Together with these forms, as if convoyed by them, there moved another figure having an equally remote and dubious likeness to a human being.

Somehow, Sarkis divined that this latter figure was intended for himself. The scene was a picture of some foreign world or dimension which these fantastic creatures invited him to visit! Alike in all its details, the tableau was duplicated on the disks.

With curious lucidity and coolness, he pondered the invitation. Should he accept it? And if he did accept, what would happen? Of course, it was all a dream—and dreams were tricky things, with a habit of vanishing if one tried consciously to fathom their elusive vistas. But—supposing it were not a dream? From what world, then, had these beings emerged, and by what mode of transit were they enabled to visit the earth? Surely they could not have come from any planet of the solar system: their utter strangeness seemed to argue that they were children of another galaxy, or at least of another sun than ours.

The beings appeared to perceive his hesitation. The pictures on their bodies faded, and were slowly replaced by others, as if they sought to woo him with the varied sceneries of their native world. At the same time, the humming noise resumed; and after awhile, the equivocal monotone began to suggest familiar words, most of which continued to elude Sarkis. He seemed to make out an eerie prolongation of "offer" and "escape," as if these vocables were uttered by some enormous, droning insect.

Then, through the strange hypnotic sound, he heard the crisp laughter of a girl and the gay chattering of human voices. Plainly several people had climbed the mountain and were coming toward him along the slope, though he could not see them as yet.

The dreamy charm was broken, and he felt a shock of actual fear as well as a deep startlement when he saw that the unknown visitors were still before him. Those intruding human voices had convinced him that the happening was no dream. He felt the involuntary recoil of the earth-born mind from things that are monstrous and inexplicable.

The voices drew nearer behind the rocks, and he thought that he recognized the tones of one or more of his fellow-campers. Then, as he continued to face the apparitions, he discerned above their grotesquely floating forms the sudden flash of sourceless coppery metals that barred the air, hanging aloft like some mechanical mirage. A maze of slanted rods and curving reticulations seemed to hover and descend about the two beings. An instant later, it was gone, and the visitants had also disappeared!

Sarkis hardly saw the approach of a woman and two men, all members of the party he had wished to avoid. To a bewilderment like that of some rudely awakened sleeper, was added the eerie consternation of one who thinks that he has met the supernatural.

● A week later, Sarkis had returned to his lodgings in San Francisco and had resumed the tedious commercial art which formed his one reliable source of livelihood. This uncongenial work had involved the ruthless smothering of higher ambitions. He had wanted to paint imaginative pictures, had dreamt of fixing in opulent color a fantasy such as Beardsley had caught in ornate line. But such pictures, it seemed, were in small request.

The happening on Spanish Mountain had stirred his imagination profoundly, though he was still doubtful of its actuality. He gave himself to endless speculation, and often he cursed the untimely interruption that had caused the visitants to vanish.

It seemed to him that the beings (if they were not mere hallucinatory images) had appeared in answer to his own vague and undirected longings for the super-mundane. Like envoys from a foreign universe, they had sought him out, had favored him with their invitation. Their attempt at verbal communication argued a knowledge of English; and it was plain that they could come and go at will, no doubt by means of some occult mechanism.

What did they want with him? he wondered. What would have been his fate if he had accompanied them?

His pictorial bent for the fantastic was deeply stimulated; and more than once, after his daily stint of advertising-art was done, he tried to paint the visitants from memory. This he found peculiarly difficult: the images with which he sought to deal were without analogy; and their very hues and proportions baffled his recollection. It was as if an alien spectrum, a trans-Euclidean geometry, had somehow been involved.

One eve, he stood glowering with dissatisfaction before his easel. The picture, he thought, was a silly smudge of over-painted colors which utterly failed to convey the true outlandishness of its theme.

There was no sound or other warning, nothing that could consciously attract his attention. But turning abruptly, he saw behind him the two beings he had met on Spanish Mountain. They swayed slowly in the lamplight between the cluttered table and a somewhat shabby divan, trailing their tasseled members on an old rug whose fading floral designs were splashed with fresh paint.

With the loaded brush in his fingers, Sarkis could only stand and stare, held in the same hypnotic thrall that had swept him beyond fear or wonder on the mountain. Once more he beheld the gradual, somnolent waving of the arabesque feelers; again he heard the dreamy monotonous hum that resolved itself into long-drawn vocables, inviting him to go with the visitants. Again, on the moonfish disks, were depicted scenes that would have been the despair of a futurist.

Almost without emotion or thought of any kind, Sarkis gave an audible consent. He hardly knew that he had spoken.

Slowly, as it had begun, the waving motion of the feelers ceased. The consonant humming died, the pictures faded. Then, as before, there came the coppery flash of air-suspended machinery. Broad, oblique rods and concave meshes hovered between ceiling and floor, descended

about the alien entities—and about Sarkis himself. Dimly, between the glowing bars, he descried the familiar furnishings of his room.

An instant more, and the room vanished like a film of shadow wiped away in light. There was no sense of movement or of transit; but it seemed that a foreign sky had opened above, pouring down a deluge of crimson. Redness streamed upon him, it filled his eyes with a fury as of boiling blood, it dripped over him in sullen or burning cascades.

By degrees, he began to distinguish outlines and masses. The bars and meshes were still around him, his strange companions were still beside him. They were weirdly altered now, and they swam in the crimson flood like the goblin fish of some infernal sea. Involuntarily, Sarkis shrank away from them: they were terrifying, monstrous.

He saw now that he was standing on a curiously tesselated floor that curved upward on all sides like the bottom of a huge saucer. High, outward-sloping walls, windowless and roofless, towered all about. The mechanism that surrounded him was also topless, and he perceived that it was changing. Very slowly, like dying flames, the rods and meshes sank and disappeared in a circle of small sockets that were part of the floor.

CHAPTER II

The World of Mlok

● A deep vermilion heaven domed the tower, pouring down the thick, heavy light. The material of which the building was composed, whether stone, metal or some unheard-of element, flowed with lustera of liquid ruby and dissolving cinnabar.

Sarkis became aware that the air he breathed, though well-supplied with oxygen, was uncomfortably thick and seemed to choke his lungs. Also, when he tried to move, he found his weight enormously increased, as if by the gravitation of a gigantic planet.

Where he was or how he had gotten there, he could not imagine. He had nursed an artistic longing for the weird, the otherworldly; but he had never dreamed of this utter and delirious alienation from known things. Moreover, he had not foreseen the shock to human nerves that would ensue an actual transition into another sphere. His sensations of physical discomfort were soon supplemented by a sort of optic torture: the light troubled him, it stimulated his senses cruelly, and yet it stifled and oppressed him at the same time.

A multitude of beings similar to his companions began to enter the topless tower, floating gradually down from the sky or swimming in through low doors. They crowded about him, and he found himself moving toward one of the exits, with their feelers and streamers tugging gently at his limbs. He felt an unreasoning terror at their touch, like a child in the grip of nightmare shadows. Their loud humming awoke in his brain the thought of some hostile horde of abominably droning insects.

Passing through the doorway, he entered a sea of light in which he was unable to discern clearly the features of the landscape. Almost vertically overhead, he saw the blinding blot of a vast sun. The throng of goblin people, increasing momently, bore him down a grassless, barren slope whose bottom was lost in the inundating crimson.

More and more, he felt an inexpressible malaise, a frightful mixture of confusion, irritation and depression to which all his senses contributed. He tried to recall the circumstances of his departure from earth, tried to assure himself that there was some natural explanation of all that had happened. The beings whose invitation he had accepted were, he told himself, friendly and well-meaning, and he would suffer no harm. But such thoughts were powerless to calm his agitated nerves, now subject to the assault of innumerable vibratory forces which the human system had never been meant to sustain.

The torture deepened. His journey down the slope, rendered doubly slow by the dragging gravitational pull and the leisurely drifting of his fantastic entourage, who seemed to obey another and more decelerated tempo of time than man, was literally a descent into hell. Every impression became a source of pain and terror, and he found a lurking menace of evil in all that surrounded him.

At the bottom of the slope, a second roofless bowl-shaped tower loomed from the murk, on the shore of a stagnant sea. To him, at that moment, it was like a shrine of alien diabolism, hateful and menacing; and he wanted to scream aloud with a nameless horror when the goblin creatures bore him toward it and urged him through its portals.

The interior of this tower yawning to the red sky, was lined with countless outlandish carvings from floor to top. In the center of the floor, there stood a curious couch, made from a pile of mattress-thick fabrics.

Eyeing the couch with nervous dubiety, Sarkis became aware that the throng had melted away, as if its curiosity were appeased. A mere half-dozen of the beings remained; and since all were equally monstrous, he could not be sure if his original companions were among them.

They gathered around him with their hateful droning, pulling him toward the couch. He resisted, but the tasseled streamers were unbelievably strong, and they tightened about him, clammily repulsive as the tentacles of octopi. The couch was innocent enough, and no doubt the creatures were merely offering him a hospitality which, in their own way, they had tried to accommodate to human needs. But Sarkis felt the terror of a fever patient, whose doctors and attendants seem like hellish torturers.

His last remnant of control gave way, and he shrieked and fought wildly. His own voice assumed an uncanny volume in the thick air, returning upon him deafeningly, surrounding him with ventriloquistic clamors; and he seemed to lift a mountainous load as he struggled.

Very gently but firmly, the creatures laid him on the couch. Fearing he knew not what, he still tried to resist them. Two of the beings proceeded to join their streamers across his recumbent body, interlacing the divided ends like fingers; and two others arranged their members in like fashion across his legs. Floating just above the floor, they held him securely to the couch, like doctors who have tied down a delirious patient.

Lying helpless, he saw the remaining two swim skyward and vanish beyond the tower's rim. After awhile he ceased his futile struggling; but his attendants still held him bound with their flat, clammy streamers.

● Sarkis lived in an aching torment, whose duration was not to be measured by earthly time. The red sky appeared to descend upon him, heavier and closer; and

the enigmatic details of the sculptures on the tower walls perturbed him with sly suggestions of alien foulness and fear. He saw Satanic faces that leered or frowned obscenely, and faceless gargoyle things that seemed to palpitate with malignant life in the crimson.

The sky took on an awful, ardent glowing. With intolerable slowness, the huge sun, rising to its meridian, filled with its orb the cup that was formed by the tower's rim. The intricate carvings ran with redoubled light, the stellar monsters and gargoyles dripped a venomous ruby that maddened the staring eyes of Sarkis, till he closed his lids against it, and still saw in his branded brain the corrosive, inexorably irritant color. Finally a great blackness came upon him: a sluggish and leaden Lethe, through which he sank interminably, still pursued by floating blots of acrid crimson, before losing himself.

He awoke in a sort of stupefaction, drugged and exhausted, as if his nerves had been burnt out by that cruel debauch of red. With nightmare effort, he opened his eyes to a heaven of funeral violet. The red sun had been succeeded by a purple binary of equal magnitude, whose orb was now intersecting the topless tower with a mournfully glaring crescent.

Sarkis could not collect his shattered thoughts; but a shapeless fear, an awareness of something irremediably wrong and baleful, rose in his mind. He was still held by the streamers of his four attendants; and moving his head, he saw that several others were floating patiently beside the couch. With their adroit members, more supple and capacious than hands, they bore a multitude of strange articles.

Seeing that he had awakened, they swam toward him, proffering certain smooth, elongated, fruit-like objects. One of them held to his lips a shallow bowl filled with a semi-viscid liquor, which he was plainly expected to drink.

Utterly astray and unstrung, Sarkis shrank in renewed terror from these beings. Bathed in that lugubrious violet, their outer forms were cadaverous as dead things from another star. An infinite melancholia poured from the purple sun, cascaded from the sloping walls, jetted from the monstrous carvings. The humming of his attendants, who doubtless sought to re-assure him, was heavy with a dirge-like horror. Refusing the offered food and drink, he closed his eyes and lay inert beneath the dismal madness that had fallen upon him.

All that followed was as if part of this madness, and not to be separated from its teeming phantasms. Sarkis was lifted from the couch by his attendants, who formed a sort of cradle with their streamers, in which they carried him from the tower and along some endless road. At intervals he opened his eyes to ghastly-looking plants that swam and swayed in the violet air like sea-weed in an ocean-stream.

Presently he knew that his bearers were descending a steep incline, as if to some deeper circle of this dolorous inferno. Walls that might have been those of a slanted catacomb, lit with a bluish, deathly lambence, stifled him with their closeness.

At length he found himself in a great chamber, whose furnishings, to his distraught eyes, bore the aspect of frightful instruments of torture. Sarkis' alarm was increased when the flat-bodied people stretched him on a slightly hollowed slab of pale mineral whose fittings of machinery at sides and ends were reminiscent of some medieval rack.

A stony fear weighed down his faculties, arrested his breathing; and he did not resist. One of his torturers was floating above him in the hell-blue light, while the others swam in a sort of ring about the slab. The floating creature laid the fringy tips of its middle streamer on his mouth and nostrils, and he felt an odd shock from the contact.

An icy coldness flowed across his face, into his brow and head, into his neck, his arms, his body. It seemed that a strange, benumbing force had been exerted by the creature; the flowing coldness was followed by a loss of all sensation, and a singular detachment from the terror and malaise that had tormented him. Without alarm or speculation, he considered the beings about him, who were now removing his garments and applying to his body the sinister little disks and needle-studded plates that formed part of the slab's mechanical equipment.

It was all meaningless to him; and in some fashion that he did not even try to understand, the whole scene took on an ever-growing dimness and remoteness, as if he were floating away from it—and from himself—into another dimension.

● His return to awareness was like a new birth. Strangeness there was, such as an infant would find in its surroundings; but fear and pain were wholly gone. He found nothing monstrous or unnatural or menacing in the world that was now revealed to his senses.

Later, when he had learned to communicate easily with the people of Mlok, they told him of the singular and radical operations which they had deemed it necessary to perform upon him: operations involving his nerves and sense-organs, so as to alleviate, by changing all his impressions and even certain subconscious functions, the torment he had suffered from the images and vibratory rays of a world in which the human senses were not prepared to function properly.

At first they had not understood his sufferings, since they themselves, being far more adaptive than men, endured little discomfort in passing from one world to another. But, having diagnosed his condition, they had hastened to palliate it through the resources of a superhuman science.

Just what had been done to him, Sarkis could never wholly grasp; but the results of the operations, admitted him to an entire new range of perceptions. His otherworld hosts had wished to make him hear, see, feel and perceive in much the same manner as themselves.

Perhaps the profoundest change was in his visual images. He saw new colors of supernal softness and beauty. The red daylight, which had almost maddened him, was now a clear and nameless hue which he somehow associated with emerald green. The light of the violet binary no longer depressed him, and its color was remotely allied to pale amber.

His ideas of form had undergone a corresponding alteration. The bodies and members of the alien people, which he had thought almost two-dimensional, and which had terrified him with their goblin grotesquery, presented many subtle planes and curves, together with a depth that argued the addition of at least one totally new dimension. The whole effect was esthetically pleasing,

with a fundamental symmetry such as he had previously discerned in well-shaped human bodies. The vegetation, scenery and architecture no longer impressed him as abnormal or monstrous.

His sense of time had now become synchronized with the slow tempo of the heavy planet, and the speech and movement of the people had lost that former sense of undue prolongation. The thick air, the weighty gravitation, had also ceased to discomfit him.

Moreover, he had acquired several new senses. One of these can best be described as a combination of hearing and touch: many sound-images, especially those of high pitch, were perceived by his ears. The sensation was that of a gently varied tapping. Another sense was that of audible color: certain hues were always accompanied by an overtone of sound, often highly musical.

His intercourse with the people of Mlok was carried on through several mediums. After the operations, they could impress telepathic words and images upon his mind. Their other modes of communication, which involved for them less expenditure of energy than pure telepathy, were mastered more gradually by Sarkis. The reflex of thought-pictures, thrown on their bodies as on a screen, became intelligible to him; and the sound-vibration of their arabesque feelers, which served them in lieu of vocal cords, was now fully articulate, with its higher notes perceivable as a graduated tactile pressure.

He learned that his hosts, who called themselves the Mloki after their planet, were an old and highly developed race, for whom the marvels of scientific mastery dom had become secondary to the delights of pure perception and reflection. Mlok, they told him, was the third planet of a binary solar system in a galaxy so remote, astronomically speaking, that its light had never reached the earth.

CHAPTER III

The Return of Sarkis

● The manner in which they had visited the earth and had taken Sarkis to their own world was indeed strange, and involved the use of an arcanic force, which, by projecting itself through the fifth dimension, could exist simultaneously in opposite corners of the universe. The apparatus of coppery-looking bars and meshes which had descended upon Sarkis was composed of this force. How it was controlled and manipulated, he never quite understood, apart from the fact that it was closely obedient to a certain nervous power possessed by the Mloki.

They had often visited the earth, as well as many other alien planets, through curiosity. In spite of their divergent sense-development, they had acquired a surprising knowledge of terrene conditions. Two of them, whose names were Nlaa and Nluu, had found Sarkis on Spanish Mountain, and had perceived telepathically his dissatisfaction with mundane life. Being sympathetic in their way, and also curious concerning the result of such an experiment, they had invited him to accompany them on their return to Mlok.

The real events of Sarkis' life among the Mloki were his new and wonderful sensations. The outward happenings were all very simple, for the existence of this people, apart from their excursions to remote worlds, was almost wholly contemplative.

For his food and drink, they supplied him with many fruits and vegetable juices. The Mloki themselves drew their nourishment directly from the air and light; and their topless towers were designed to collect and focus all the solar rays, the absorption of which was to them a rare, Epicurean pleasure. To a limited extent, the alteration of Sarkis' nerves had given him a similar faculty; but he still depended mainly on grosser foods.

One very remarkable feature of the sensory change in Sarkis was the vagueness which attended his impressions of his own body. He seemed to possess a dream-like immateriality, and to drift rather than walk in his movement from place to place.

He spent much of his time in converse with certain of the Mloki, especially Nlaa and Nluu, who took a tutelary interest in their protégé, and never wearied of imparting to him their immensely recondite and various knowledge. He acquired undreamt-of conceptions regarding time, space, life, matter and energy, and was also instructed in novel esthetics and in highly complicated arts which made painting appear a silly and barbarous pastime.

How long he remained in Mlok, he never knew. His instructors a long-lived people to whom centuries were no more than years, gave little importance to the formal measurement of time. But many of the long, double days and brief, irregular nights had gone by, before a homesickness for the lost earth began to torment him. Amid all the beguilements and novelties of his existence, beneath his altered senses, a nostalgia rose in his brain, which was still, at bottom, the brain of an earthman.

The feeling came upon him by degrees. His memories of the world he had formerly detested and from which he had longed to escape, took on a haunting charm and poignancy, and were touched with an enchantment such as belongs to early childhood. He recoiled from the sensory opulence of the world about him, and yearned for the simple scenes and faces of the human sphere.

The Mloki, well aware of the growth of this feeling, tried to distract him with new impressions and took him on a tour of their planet. In this tour, they employed a vessel which swam through the thick air like a submarine in some tellurian ocean. Nlaa and Nluu accompanied the earthman, solicitious, and eager to point out the marvels of each latitude.

The effect however, was merely to aggravate Sarkis' nostalgia. Peering down on the domeless Karnaks and Babylons of this ultra-cosmic world he thought of the earth-cities with a craving which, in view of his former aversion for the works of man, he would never have believed possible. Drifting among prodigious mountains, where mundane peaks would have been lost like boulders, he recalled the Sierras with a sick yearning that moved him almost to tears.

After rounding the equator of Mlok, and visiting the iceless poles, the expedition returned to its starting-point, which lay in the tropic realms. Sarkis, now desperately ill and languishing, implored Nlaa and Nluu to send him back by means of the occult force-projector to his own world. They tried to dissuade him, saying that his homesickness was merely a brain-wrought illusion that would wear off in time.

In order to relieve him permanently and speedily from his suffering, they proposed a certain treatment of

his brain-cells. By the injection of a rare vegetable serum, they could alter his very memories and mental reactions. These, as well as his sense-impressions, would then approximate those of the Mloki.

● Sarkis, though he shrank in a way from the proposed mental transformation, which would have removed him utterly and forever beyond humanity, might well have consented. But certain untoward happenings, wholly unforeseen, were to bring about another eventuation than this.

The planetary system to which Mlok belonged was on the very extreme of its native island universe. In the short intersolar nights, this universe could be seen as a nebulous star-cloud, filling half of the heavens; but the other half was dark and rayless as the Coal Sack familiar to terrene astronomers. It seemed that there were no living stars in the sable gulf, unless at a distance that had not yet permitted their rays to reach the observatories of Mlok.

Nevertheless, there came from this void the first invasion that had ever threatened the security of the two-sunned planet. The first warning of this invasion was a dark cloud—a thing hitherto unknown in Mlok, whose humid element was constant in the thick seas and heavy air, without evaporation or precipitation. The cloud, which had the form of a trapezium, drew down and widened rapidly above the southern zones, doming the sky with intense ebon. It broke on the lands beneath in a rain of black, liquid globules, which acted like a mordant chemical. Flesh, stone, soil, vegetation, everything that was touched by the rain, dissolved instantly, forming tarry pools and rills that soon merged in an ever-spreading sea.

The news of this catastrophe became known immediately all over the planet. The corrosive sea was watched from air-vessels, and every effort was made to curb its inroads. Dykes of atomic energy were built to enclose it; and belts of elemental fire were centered upon the pollution, to burn it away. But all such measures were in vain: the sea, like a liquid cancer, ate steadily into the huge planet.

Some of the black fluid was obtained by Mloki who sacrificed their own lives in submitting it to analysis. Even as the element began its ravages upon their bodies, they announced their findings as to its nature. The globules that had fallen from space, they thought, were protoplasmic organisms of an unknown type, which had the power of liquefying all other forms of matter in what was seemingly an illimitable process of assimilation. This process had formed the eroding sea.

Another rain of globules was soon reported, this time in the northern hemisphere. A third precipitation, following swiftly, made certain the eventual doom of Mlok. The people could only flee from the dissolving littorals of the three oceans, which were widening in ravenous circles and would sooner or later unite and surround the planet. It became known, also, that the other worlds of the system, which were not peopled by intelligent beings, had been attacked by the lethal organisms.

The Mloki, a philosophic race, long given to equable meditation on cosmic change and death, were resigned to the coming annihilation. Though they could have fled to alien worlds by means of their space-projectors, they preferred to perish with their planet.

Nlaa and Nluu, however, as well as their fellows in general, now became anxious for the return of Lemuel Sarkis to his own sphere. It was not just or proper, they argued, that he should share the doom of an ultra-terrene people. They had promptly abandoned the idea of subjecting him to further medical treatment, and could only urge his immediate departure.

In a state of oddly bewildered emotions, he was taken by Nlaa and Nluu to the tower through which he had entered Mlok. From the hill on which this tower stood, he could discern the black arc of the encroaching sea of dissolution on the far horizon.

Enjoined by his preceptors, he took his place amid the circle of floor-sockets that formed the generators of the transporting mechanism. With much regret and sadness, he said farewell to Nlaa and Nluu, after vainly pressing them to accompany him.

Since, as they told him, they could determine by means of their thought-images the very spot in which he was to land, he had expressed a desire to return to Earth via his studio in San Francisco. Moreover, since travel in time was no less feasible than space-transit, his mundane re-appearance would occur on the morning that had followed his departure.

Slowly, and having now a different form and hue for his altered eyes, the bars and meshes sprang from the tower floor and surrounded Sarkis. All at once, the air darkened strangely. He turned again toward Nlaa and Nluu for a parting glimpse—and found that they, as well as the tower, had vanished. The transition had already taken place!

● The pseudo-metallic rods and meshes began to dissolve about him, and he looked for the familiar outlines and furnishings of his studio. A puzzlement assailed him, and then a hideously growing doubt. Surely Nlaa and Nluu had made a mistake, or else the projecting power had failed to return him to his chosen bourn. Seemingly he had been landed in a totally unknown sphere or dimension.

Around him, in a sullen light, he saw the looming of dark, chaotic masses, whose very contours were touched with nightmare menace. Surely this place was not his studio room—these crazily angled cliffs that closed him in were not walls, but the sides of some infernal pit! The dome above, with its dolorously distorted planes, pouring down a hellish glare, was not the skylighted roof that he recalled. The bulging horrors that rose before him along the bottom of the pit, with obscene forms and corrupt hues, were surely not his easel, table and chairs.

He took a single step, and was alarmed by the horrible lightness which he felt. As if by some miscalculation of distance, the step carried him against one of the looming objects, and he ran his hands over it, finding that the thing, whatever it might be, was clammily repulsive to the touch as well as repugnant to sight. Something about it, however, on close inspection, was remotely familiar. The thing was like an overswollen, geometric travesty of an armchair!

Sarkis felt a nervous perturbation, a vague and all-surrounding terror, comparable to that of his first impressions in Mlok. He realized that Nlaa and Nluu had kept their word, and had returned him to his studio; but the realization merely increased his bewilderment. Be-

cause of the profound sensory changes to which he had been subjected by the Mloki, his perceptions of form, light, color and perspective were no longer those of an earthman. Therefore the well-remembered room and its furnishings were wholly monstrous to him. Somehow, in his nostalgia, and the haste and flurry of his departure, he had failed to foresee the inevitability of this change of aspect in all earthly things.

A hideous vertigo swept upon him with the full understanding of his predicament. He was, virtually, in the position of a madman who knows well his own madness, but is utterly without power to control it. Whether or not his new mode of cognition was closer to ultimate reality than the former human mode, he could not know. It mattered little, in the overwhelming sense of estrangement, amid which he sought desperately to recover the least hint or vestige of the world that he remembered.

With the doubtful groping of one who seeks an exit from some formidable maze, he searched for the door, which he had left unlocked on the evening when he accepted the invitation of Nlaa and Nluu. His very sense of direction, he found, had become inverted; the relative nearness and proportion of objects baffled him; but at last, after many stumblings and collisions with the misshapen furniture, he found an insanely faceted projection amid the perverted planes of the wall. This, he somehow determined, was the door-knob.

After repeated effort he opened the door, which seemed to be of unnatural thickness, with convex distortions. Beyond, he saw a yawning cavern with lugubrious arches, which he knew to be the hall of the apartment house in which he lived.

His progress along the hall and down the two flights of stairs to the street-level was like a pilgrimage in some ever-deepening nightmare. The time was early morning, and he met no one. But apart from the maddening visual distortion of everything about him, he was assailed, as he went on, by a multitude of other sense-impressions that confirmed and increased his neural torture.

He heard the noises of the awakening city, set to an alien tempo of delirious speed and fury: a hurtling of cruel clangors, whose higher notes beat upon him like a pounding of hammers, a volleying of pebbles. The ceaseless impingement stunned him more and more; it seemed that the thronging strokes would batter in his very brain.

He emerged at length on what he knew to be the city street: a broad avenue that ran toward the ferry building. The early traffic had begun and to Sarkis, the passing cars and pedestrians seemed to whirl with lightning speed, like the souls of the damned in some nether chasm of an insane hell. For him, the morning sunlight was a lurid, baleful gloom that flowed in forky rays from a demonian Eye that brooded above the chasm.

The buildings, with pestilent hues and outlines, were full of the terror of delirium, the abomination of ill dreams. The people were ghastly creatures whose headlong movement barely permitted him to form a clear impression of their bulging eyes, their bloated faces and bodies. They terrified him, even as the people of Mlok beneath the maddening vermilion sun.

● The air was thin and bodiless to him, and he suffered a peculiar discomfort from the lessened pressure and gravity, which now added to his feeling of hopeless alienation. He seemed to move like a wildered phantom through the dismal Hades to which he had been committed.

He heard the voices of the monsters who went flying past: voices that partook of the same giddy acceleration as their movements, so that the words were indistinguishable. It was like the sound of some vocal record, played too fast on a phonograph.

Sarkis groped his way along the pavement, searching for some familiar landmark in the alien-angled masses of the buildings. Sometimes he thought that he was about to discover a remembered hotel or shop-front—and then, a moment later, the broken similitude was lost in a mad bizarrerie.

He came to an open space, which he had known as a small park, with well-kept trees and shrubbery amid the greening grass. He had been fond of the place, and its memory had often haunted him in his cosmic homesickness. Now, stumbling upon it in that city of delirium, he sought vainly to retrieve the longed-for charm and loveliness.

The trees and shrubs were like towering fungi, loathsome, unclean, and the grass was a vermin-grey foulness from which he turned in sick revulsion.

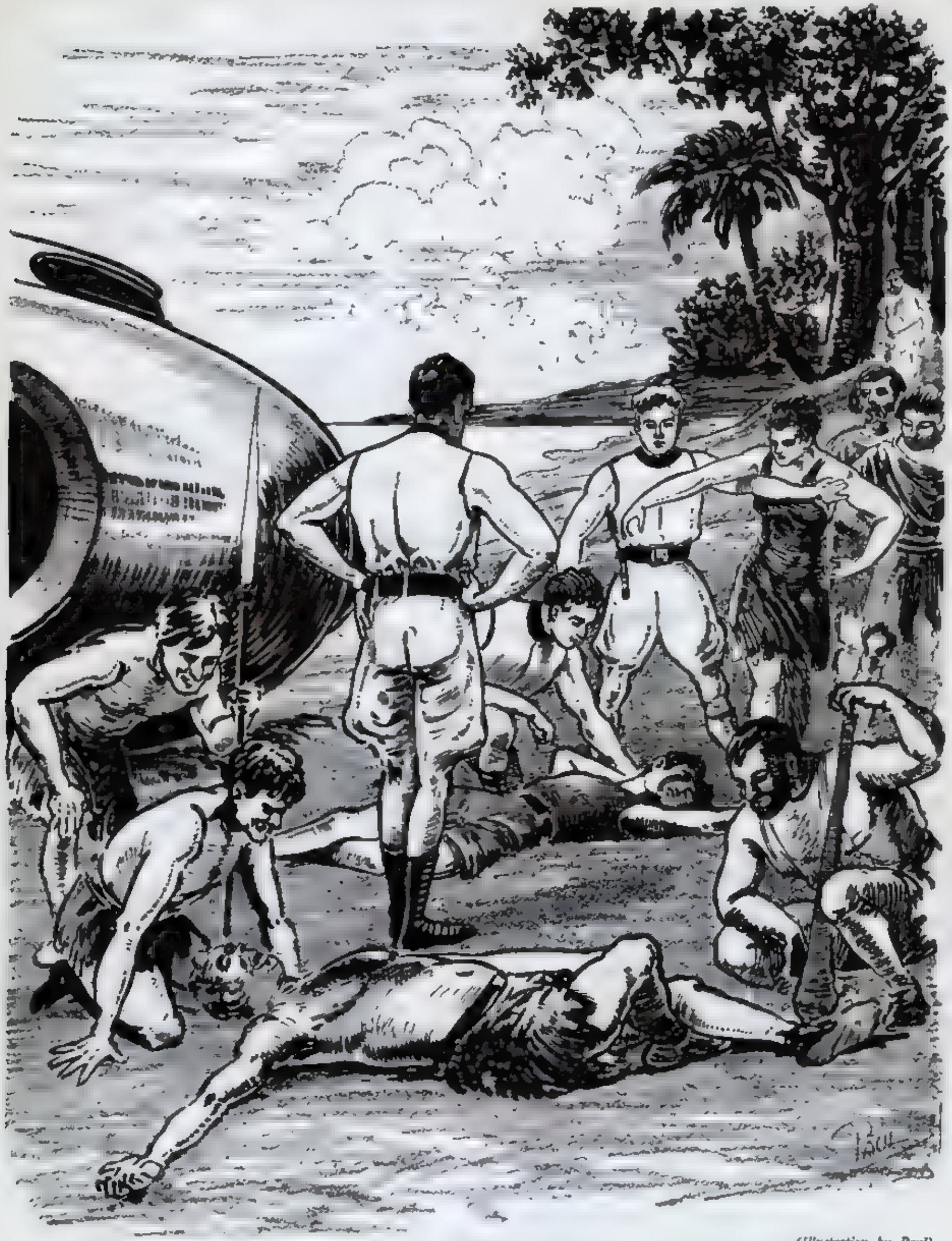
Astray in that labyrinth of fear, and virtually out of his senses, he fled at random, and tried to cross an arterial where cars were hurtling by at the apparent speed of projectiles. Here, with no warning that his eyes or ears could perceive, something struck him down like a sudden bolt, and he slid into merciful oblivion.

He awoke an hour later in the hospital to which he had been taken. The injuries which he had sustained, from being knocked down by the slowly driven car before which he had thrust himself as if deaf and blind, were not serious, but his general condition puzzled the doctors.

When, with reviving consciousness, he began to scream horribly, and to shrink away as if in mortal terror from his attendants, they were inclined to diagnose the case as delirium tremens. His nerves were obviously in a bad way; though, curiously enough, the doctors failed to detect the presence of alcohol or any known drug to support their diagnosis.

Sarkis failed to respond to the powerful sedatives which they administered. His sufferings, which seemed to take the form of terrific hallucinations, were prolonged and progressive. One of the internes noted a queer deformation of his eyeballs; and there was much speculation regarding the singular long-drawn *slowness* of his screams and writhings. However, though baffling, his case was readily enough dismissed by the doctors when, a week later, he persisted in dying. It was merely one more of those unsolved enigmas that sometimes occur even in the best-regulated of professions.

THE END



(Illustration by Paul)

"We came to get you and found you had been having trouble with the other Unreasonables. But we picked you up."

THE ISLAND OF UNREASON

By EDMOND HAMILTON

● Reason, we hope, is being made more and more the guide for our actions. What must this tendency ultimately lead to? Will emotion be stamped out of our lives entirely, and the race become merely adding machines? Mr. Hamilton carries us into the future to visualize an intermediate era, when emotion is despised but not yet stamped out. His story of that time is not only amusing and interesting, but instructive of the changes that the race must pass through to escape from our emotion-ridden ancestors to a new day when we shall be all intellectual giants.

● The Director of City 72, North American Division 16, looked up enquiringly from his desk at his assistant.

"The next case is Allan Mann, Serial Number 2473R6," said the First Assistant Director. "The charge is breach of reason."

"The prisoner is ready?" asked the Director, and when his subordinate nodded he ordered, "Send him in."

The First Assistant Director went out and re-entered in a moment, followed by two guards who had the prisoner between them. He was a young man dressed in the regulation sleeveless white shirt and white shorts, with the blue square of the Mechanical Department on his shoulder.

He looked a little uncertainly around the big office, at the keyboards of the big calculating and predicting machines, at the televisor disks through which could be seen cities half around the world, and at the broad windows that looked out across the huge cubical metal buildings of City 72.

The Director read from a sheet on his desk. "Allan Mann, Serial Number 2473R6, was apprehended two days ago on a charge of breach of reason.

"The specific charge is that Allan Mann, who had been working two years on development of a new atomic motor, refused to turn over his work to Michael Russ, Serial Number 1877R6, when ordered to do so by a superior. He could give no reasonable cause for his refusal but stated only that he had developed the new motor for two years and wanted to finish it himself. As this was a plain breach of reason, officers were called."

The Director looked up at the prisoner. "Have you any defense, Allan Mann?"

The young man flushed. "No, sir, I have not. I wish only to say that I realize now I was wrong."

"Why did you rebel against your superior's order? Did he not tell you that Michael Russ was better fitted than you to finish development of your motor?"

"He did, yes," Allan Mann answered. "But I had worked on the motor so long I wanted very much to finish it myself, even though it took longer—I realize it was unreasonable of me—"

The Director laid down the sheet and bent earnestly forward. "You are right, Allan Mann, it was unreasonable of you. It was a breach of reason and as such, it was a blow at the very foundation of our modern world-civilization!"

He raised a lean finger in emphasis. "What is it, Allan Mann, that has built up the present world-state out of a mass of warring nations? What has eliminated conflict, fear, poverty, hardship from the world? What but reason?

"Reason has raised man from the beast-like level he formerly occupied to his present status. Why, in the old days of unreason the very ground on which this city now stands was occupied by a city called New York where men struggled and strove with each other blindly and without cooperation and with infinite waste and toil.

"All that has been changed by reason. The old emotions which twisted and warped men's minds have been overruled and we listen now only to the calm dictates of reason. Reason has brought us up from the barbarism of the twentieth century and to commit a breach of reason has become a serious crime. For it is a crime that aims directly at the demolition of our world-order."

Beneath the Director's calm statement, Allan Mann wilted. "I realize that that is so, sir," he said. "It is my hope that my breach of reason will be regarded only as a temporary aberration."

"I do so regard it," the Director said. "I am sure that by now you realize the wrongness of unreasonable conduct.

"But," he continued, "this explanation of your act does not excuse it. The fact remains that you have committed a breach of reason and that you must be corrected in the way specified by law."

"What is this way of correction?" asked Allan Mann.

The Director considered him. "You are not the first one to commit a breach of reason, Allan Mann. In the past more than one person has let irrational emotions sway him. These atavistic returns to unreason are becoming rarer but they still occur.

"Long ago we devised a plan for the correction of these *unreasonables*, as we call them. We do not punish them, of course, for to inflict punishment on anyone for wrong-doing would be itself unreasonable. We try in-

stead to cure them. We send them to what we call the island of unreason.

"That is a small island a few hundred miles out at sea from this coast. There are taken all the unreasonables and there they are left. There is no form of government on the island and only unreasonables live there. They are not given any of the comforts of life which human reason has devised but instead must live there as best they may in primitive fashion.

● "If they fight or attack each other, it is nothing to us. If they steal from each other, we care not. For living like that, in a place where there is no rule of reason, they soon come to see what society would be like without reason. They see and never forget and most of them when their sentence is finished and they are brought back are only too glad for the rest of their lives to live in reasonable fashion. Though a few incorrigible unreasonables must stay on the island all their lives.

"It is to this island that all guilty of breach of reason must be sent. And so as provided by law, I must sentence you to go there."

"To the island of unreason?" Allan Mann said, dismay plain on his face. "But for how long?"

"We never tell those sent there how long their sentence is to be," the Director told him. "We want them to feel that they have a lifetime ahead of them on the island and this brings the lesson further home to them. When your sentence is finished, the guard-flier that takes you there will go there to bring you back."

He stood up. "Have you any complaint to make against this sentence?"

Allan Mann was silent, then spoke in subdued voice. "No, sir, it is but reasonable that I be corrected according to custom."

The Director smiled. "I am glad to see that you are already recovering. When your sentence has expired I hope to see you completely cured."

* * *

The guard-flier split the air like a slim metal torpedo as it hurtled eastward over the gray ocean. Long minutes before the coastline had faded from sight behind, and now beneath the noonday sun there extended to the horizons only the gray wastes of the empty ocean.

Allan Mann regarded it from the flier's window with deepening dismay. Reared in the great cities like every other member of civilized humanity, he had an inborn dislike of this solitude. He sought to evade it temporarily by conversing with the two guards who, with a pilot, were the flier's other occupants. But Allan found that they disliked to talk much to unreasonables.

"It'll be in sight in a few minutes," one of them said in answer to his question. "Soon enough for you, I guess."

"Where do you land me there?" Allan asked. "There's some kind of city there?"

"A city on the island of unreason?" The guard shook his head. "Of course not. Those unreasonables couldn't cooperate long enough on anything to build any kind of a city."

"But there's some sort of a place for us to live, isn't there?" asked Allan Mann anxiously.

"No place but what you find for yourself," said the guard unsympathetically. "Some of the unreasonables do have a kind of village of huts but some of them just run wild."

"But even those must sleep and eat *somewhere*," insisted Allan with all the firm faith of his kind in the omnipresence of bed and food and hygienic amusements provided by a paternal government.

"They sleep in the best places they can find, I suppose," said the guard. "They eat fruits and berries and kill small animals and eat them—"

"Eat animals?" Allan Mann, of the world's fiftieth generation of vegetarians, was so shocked by the revolting thought that he sat silent until the pilot droned over his shoulder, "Island ahead!"

He looked anxiously down with the guards as the flier circled and came back and dropped in a spiral toward the island.

It was not a large island, just an oblong bit of land that lay on the great ocean like a sleeping sea-monster. Dense green forest covered its low hills and shallow ravines and extended down to the shelving sandy beaches.

● To Allan Mann it looked savage, wild, forbidding. He could see smoke rising in several thin curls from the island's western end but this evidence of man's presence repelled rather than reassurred him. Those smokes came from crude fires where men were perhaps scorching and eating the flesh of lately-living things—

The guard-flier dipped lower, shot along the beach and came to rest with its vertical air-jets spuming up sand.

"Out with you," said the chief guard as he opened the door. "Can stay here but a moment."

Allan Mann, stepping down onto the hot sand, clung to the flier's door as a last link to civilization. "You'll come back for me when my sentence is up?" he cried. "You'll know where to find me?"

"We'll find you if you're on the island but don't worry about that—maybe your sentence was life," grinned the chief guard. "If it wasn't, we'll get you unless some unreasonable has killed you."

"Killed me?" said Allan, aghast. "Do you mean to say that they kill each other?"

"They do, and with pleasure," said the guard. "Better get off this beach before you're seen. Remember, you're not living with reasonable people now!"

With the slam of its door the guard-flier's jets roared and it shot upward. Allan Mann watched stupefiedly as it rose, circled in the sunshine like a gleaming gull, and then headed back westward. Sickly, he watched it vanish, westward toward the land where people were reasonable and life went safely and smoothly without the dangers that threatened him here.

With a start Allan Mann realized that he was increasing his danger by remaining out on the open beach where he might easily be seen by anyone in the woods. He could not yet conceive why any of the unreasonables might want to kill him but he feared the worst. Allan Mann started on a run up the beach toward the woods.

His feet slipped in the hot sands and though Allan was physically perfect like all other citizens of the modern world, he found progress difficult. Each moment he expected to see a horde of yelling unreasonables appear along the beach. He quite forgot that he was a condemned unreasonable himself, and saw himself as a lone

representative of civilization marooned on this savage island.

He reached the woods and plumped down behind a bush, panting for breath and looking this way and that. The forest was very hot and silent, a place of green gloom pillared by bars of golden sunlight that struck down through chinks in the leafy canopy above. Allan heard birds chittering around him.

He considered his predicament. He must live on this island for an unguessable length of time. It might be a month, a year, even many years. He saw now how true was the fact that the prisoner's ignorance of his sentence's length made it all the more felt. Why, he might, as the guard had said, have to spend all his life on the island!

He tried to tell himself that this was improbable and that his sentence could not be so severe. But no matter what its length, he must prepare to live here. The essentials were shelter and food, and escape from the other unreasonables. He decided that he would first find some secluded spot for a shelter, construct one, and then try to find berries or fruits such as the guard had mentioned. Meat was not to be thought of without revulsion.

Cautiously Allan Mann got to his feet and looked about. The green forest seemed still and peaceful but he peopled it with a myriad dangers. From behind every bush menacing eyes might be spying on him. Nevertheless, he must win to a more hidden spot and so he started in through the woods, determining to keep away from the island's western end where he had seen the smokes.

Allan Mann had gone but a dozen fearful steps when he stopped short, whirled. Through the brush someone was crashing toward him.

His panic-stricken mind had not the time to think of flight before the running figure emerged from the brush beside him, then at sight of him recoiled.

It was a girl clad in a stained, ragged tunic. Her limbs showed brown below its tattered hem, her black hair was cut very short, and as she threw herself back from him in alarm a short spear in her right hand flashed up ready to dart toward him.

Had he made a move toward her the spear would have been driven at him; but he stood as quivering and startled as she. Gradually as they confronted each other, the fact that he was harmless became apparent to the girl and some of the terror left her eyes.

Yet with her gaze still upon him she backed cautiously away until just behind her were some dense bushes. With a quick escape thus assured her, she surveyed him.

"You're new?" she said. "I saw the flier come."

"New?" said Allan mystified.

"New to the island, I mean," she said quickly. "They just left you, didn't they?"

Allan nodded. He was still trembling slightly. "Yes, they just left me. It was breach of reason—"

"Of course," she said. "That's what we're all here for, we unreasonables. Those old fogies of directors send someone here every few days or so."

At this heretical description of the executives of the reasonable world, Allan Mann stared. "Why shouldn't they send them?" he demanded. "It's only fair they should correct unreasonables."

Her bright black eyes widened. "*You* don't talk like an unreasonable," she accused.

"I should hope not," he returned. "I committed a breach of reason but I realize it and I'm sorry I did it."

"Oh," she said, and seemed disappointed. "What's your name? Mine's Lita."

"Mine is Allan Mann. My serial number—" He stopped.

CHAPTER II

First Struggles

A bird had called loudly back in the woods and the sound had seemed to recall something to the girl and bring fear back into her eyes.

"We'd better get out of here," she said quickly. "Hara will be along here after me—he was chasing me."

"Chasing you?" Allan remembered with a cold feeling the guard's warning. "Who is Hara?"

"Hara's boss of the island—he's a lifer they just brought a few weeks ago but he's beaten all the strongest men here."

"You mean that they *fight* here to see who is to be the leader?" Allan asked incredulously. Lita nodded.

"Of course they do. This isn't back in civilization where the best mind ranks highest, you know. And Hara's after me."

"He wants to kill you?"

"Of course not! He wants me for his woman and I won't consent. I never will, either." The black eyes flashed.

Allan Mann felt that he had strayed into some mystifying new world. "His woman?" he said with knitted brows.

Lita nodded impatiently. "When people here mate there's no Eugenic Board to assign them to each other so they simply fight for mates.

"Hara has been after me and I won't have him. He got angry today and said he'd make me but I fled the village and when he and some of the others started after me I was—*listen!*"

Lita stopped with the tense command and Allan, listening with her, heard from somewhere in the woods distant trampling and crashing, a hoarse voice calling and others answering.

"They're coming!" Lita cried. "Come on, quick!"

"But they can't—" Allan started vainly to say, and then was cut off as he found himself running with the girl through the woods.

Branches tore at his shorts and briars pricked his legs savagely as they forced through the brush. Lita led inward toward the island's center and Allan struggled to keep beside her.

His muscles were in the pink of condition but he now found that running from danger through a forest was oddly different from running beneath the sunlamps of one of the great city gymnasiums. There was a tightness across his chest, a cold at his spine, as he heard the hoarse voices behind.

Lita looked back, her face white through its brown, as she and Allan ran. Allan Mann told himself that there was no reason why he should follow this girl into trouble. Before he could formulate the thought further they emerged into a small clearing just as from one side of it there crashed another man.

A bull-like roar of triumph went up and Allan Mann saw that the man was a barrel-bodied, stocky individual with flaming red hair on his head and chest, his hard face

alight. He grasped Lita's arm as the girl swiftly shrank back beside Allan.

"Hara!" she panted, trying in vain to break free.

"Ran away, eh?" he said savagely, and then his eyes took in Allan Mann. "And with this white-faced sheep!"

"Well, we'll see whether he's good enough to take a girl away from Hara!" he added. "You've no spear or club so we'll make it fists!"

He tossed his own club and spear to the ground and advanced with balled fists on Allan. "What do you mean?" asked Allan dazedly.

"Fight, of course!" bellowed Hara. "You wanted this girl and you can fight me for her!"

Allan Mann thought swiftly. Against this brutal fighter he would have small chance—now, if ever, he must use the reason that is man's advantage over the brute. "But I don't want her!" he said. "I don't want to fight for her!"

Hara stopped in sheer surprise and Allan saw Lita's dark eyes stare at him. "Don't want to fight?" cried the other. "Then run, rat!" And as he snarled that in contempt he turned to grasp the girl.

As he turned Allan stooped swiftly, scooped up his heavy club and slammed it against the back of Hara's neck. The red-head went down like a sack of meal.

"Come on!" cried Allan tensely to Lita. "Before he comes to we can get away—quick!"

They rushed in to the brush. Soon they heard the calling voices become suddenly noisy, then die away. They stopped, panting.

"That was brain-work," said Allan Mann exultantly. "He won't come to for an hour."

Lita looked scornfully at him. "That wasn't fair fighting," she accused.

Allan Mann was aghast. "Fair fighting?" he repeated. "But surely when you wanted to get away from him—you didn't expect me to fight him with my fists—"

"It wasn't fair," she repeated. "You hit him when he wasn't looking and that's cowardly."

If Allan Mann had not been super-civilized he would have sworn.

"But what's wrong about it?" he asked bewilderedly. "Surely it's only reasonable for me to use cunning against his strength?"

"We don't care much on this island about being reasonable—you ought to know that," she told him. "But we do believe in fighting fair."

"In that case you can get away from him the next time yourself," he said furiously. "You unreasonables—"

A thought struck him. "How did you come to be sent to this island anyway?"

● Lita smiled. "I'm a lifer. So are Hara and most of the others at the village."

"A lifer? What did you do to get a life-sentence in this horrible place?"

"Well, six months ago the Eugenic Board in my city assigned me a mate. I refused to have him. The Board had me charged with breach of reason and when I persisted in my refusal I was sentenced here for life."

"No wonder," breathed Allan Mann. "To refuse the mate the Board assigned—I never heard of such a thing! Why did you do it?"

"I didn't like the way he looked at me," said Lita, as though that explained everything.

Allan Mann shook his head helplessly. He could not understand the thought-processes of these unreasonables.

"We'd better get on into the island," Lita was saying. "Hara will come to in a little while and he will be very angry with you and will want to catch you."

At that thought Allan's blood ran cold. He could picture the big Hara in bull-like rage and the thought of himself in the grip of those hairy hands was terrifying. He stood up with Lita and looked apprehensively around.

"Which way?" he asked in a whisper.

She nodded toward the island's center. "The woods in there will be best. We'll have to avoid the village."

They started through the woods. Lita went first, her spear ready at all times. Allan followed, and after a few minutes he picked up a heavy section of hard wood that would make an effective club at need. He held the weapon awkwardly as they went on.

They were penetrating into deeper woods, and it was all a strange world to Allan. He knew forests only as seen from a flier, green masses that lay between the great cities. Now he was down in one, part of it. The birds and insects, the small animals in the brush, all of these were new to him. More than once Lita had to caution him as he made a noise in stepping on dry sticks. The girl went as quietly through the woods as a cat.

They climbed a slope and went over its ridge. On the ridge Lita halted to point out to him the clearing at the island's west end that held the village, a score or more of solid log cabins. Smoke curled from their chimneys and Allan Mann saw men standing about and children playing in the sunlit clearing. He was deeply interested by this village. But Lita led onward.

The woods about them were now so dense that Allan felt more safe. He had acquired a certain confidence of step. Then he was suddenly startled out of it. As a rabbit dashed by under their feet, bolting for cover, Lita's short spear flashed like a streak of light. The rabbit rolled over and over and then lay still.

The girl ran and picked it up, turned and held up the furry thing with her face exultant. It would be their supper, she told him. Allan stared at her incredulously. He felt as revolted by her act as his ancestors of generations before would have been by a murder. He tried not to show Lita how he regarded her.

When they reached a tiny gully deep in the woods, Lita stopped. The sun was sinking and already darkness was invading the forest. They would spend the night there, Lita told him, and she began construction of two tiny branch-shelters.

Under her orders Allan tore branches from the trees and stacked them. More than once she had to correct him and he felt ridiculously incompetent. When they had finished, before them stood two fairly tight little huts. Allan, looking at these shelters that had been brought out of nothing, for the first time felt a certain respect for the girl.

He watched her, as slowly with stone and steel she took from a pouch at her belt, she constructed a fire. He found the business of eliciting and nursing the sparks intensely engrossing. Soon she had a tiny little blaze, too small to show smoke above the darkening woods or to be seen for far.

She calmly cleaned the rabbit then. Allan watched

her in entranced horror. When she had finished she began to roast it.

She offered him a red bit on a stick, to roast for himself. "I can't eat that!" he said sickly.

Lita looked at him, then smiled. "I was the same way when I came to the island," she said. "All of us are but we get to like it."

"Like eating the flesh of another living creature?" Allan said. "I'll never like that."

"You will when you're hungry enough," she said calmly, and went on roasting the rest of the rabbit.

Allan, watching her eat the browned meat, became aware that he was already very hungry. He had not eaten since that morning.

He contrasted that morning meal in the Nutrition Dispensary, with its automatic service and mushy predigested foods, with this place.

It was too dark for him to look for berries. He sat watching the girl eat. The smell of the scorched flesh, which at first he had found revolting, did not now seem so bad.

"Go ahead, eat it," Lita told him, handing him one of the roasted bits. "No matter how bad it is, it's only reasonable to eat anything that will keep you living, isn't it?"

CHAPTER III

A World of Turmoil

● Allan's face cleared and he nodded troubledly. It certainly was only reasonable to eat what was at hand in necessity. "I don't think I can do it, though," he said, eyeing the browned bit.

He bit gingerly into it. At the thought that he had in his mouth the flesh of another once-living creature, his stomach almost revolted. But with an effort he swallowed the bit.

It was hot and did not seem unpleasant. There were certain juices—quite unlike the foods of the Nutrition Dispensary, he thought. He reached doubtfully for another piece.

From behind her lashes with a secret smile Lita watched him eat another piece and then another of the rabbit. His jaws ached with the unaccustomed labor of chewing but his stomach sent up messages of gladness. He did not stop until all of the rabbit was gone and then he went back to some of the bones he had already discarded and polished them off more thoroughly.

He looked up at last, greasy of hands, to meet Lita's enigmatic expression. Allan flushed.

"It was only reasonable to eat all of it, since it had to be eaten," he defended.

"Did you like it?" she said.

"What has liking got to do with the nutritive qualities of food?" he countered. Lita laughed.

They put out the fire and retired to the two huts. Lita kept her spear but he retained his club. She showed him how to close up his hut once he was inside.

For a time Allan Mann lay awake in the darkness on the branch-bed she had built. It was very uncomfortable, he found.

He could not but contrast it with his neat bed back in the dormitory that was his home in City 72. How long would it be before he was again in it, he wondered. How long—

Allan sat up, rubbing his eyes, to find bright sunlight filtering through the interstices of his leafy shelter. He had slept on the branches after all, and soundly. Yet he felt stiff and sore as he got to his feet and went out.

It was still early morning though the sunlight was bright. The other hut was empty and Lita was not anywhere in sight.

Allan felt a sudden sense of alarm. Had anything happened to his companion?

He was about to risk calling aloud when bushes rustled behind him and as he spun about she emerged from them. Her hands were full of bright red little berries.

"Breakfast," she smiled at him. "It's all there is."

They ate them. "What are we going to do now?" asked Allan.

Lita's brows knit. "I don't dare to go back to the village yet for Hara might be there. Neither can you go now after what you did."

"I don't want to go there," Allan protested quickly. He had no desire to face any more unreasonables like the one he had met.

"We'd better keep moving on into the island," she said. "We can live for a while in the woods, anyway."

They started on, the girl with her spear and Allan bringing his rude club.

The soreness and stiffness quickly left Allan's muscles as they moved on. He found a certain pleasure in this tramp through the sun-dappled woods.

They heard no sign of pursuit and relaxed their cautiousness of progress a little. It was a mistake, as Allan Mann found when something struck him a numbing blow on the left arm and he spun to find two ragged men charging fiercely from a clump of brush.

One of them had flung his club to stun Allan. The other now rushed forward with bludgeon upraised to do what his companion had failed to do. There was no possible chance to flee or to use strategy and with the blind desperate terror of a cornered animal Allan Mann struck wildly out with his own club at the onrushing attacker.

He knocked the club spinning from the other's hand by his first wild blow. He heard Lita cry out but he was now gone amuck with terror, was showering crazy blows upon his opponent. Then Allan became suddenly aware that the other was no longer standing before him but lay stunned at his feet. The second man was running to pick up his club.

Lita's spear flashed at the running man and missed. But as the man bent for his weapon Allan swung his club in a mighty blow.

It missed the stooping man by a foot but the terrific swing seemed to unnerve him for he abandoned his weapon and took to his heels, running back into the woods.

"Hara!" he yelled hoarsely as he ran. "Hara, here they are—!"

Lita ran to the side of the panting Allan. "You're not hurt?" she cried. "You beat them both—it was wonderful!"

But Allan Mann's sudden insanity had left him and he felt only terror. "He'll bring Hara and the rest here!" he cried. "We've got to flee—"

The girl picked up her spear and they hastened on into the forest. They heard other calling voices behind them now.

"You needn't be so afraid when you can fight like that!" Lita exclaimed as they hurried on, but Allan shook his head.

"I didn't know what I was doing! This terrible place with its fighting and turmoil and craziness—It's even got me acting as unreasonably as the others! If I ever get away from here—"

The calling voices were louder and closer behind them as the two ran on. There seemed a dozen or more of them.

Allan thought he could distinguish the bull-like voice of Hara. At thought of that red-haired giant his body went taut.

● He and the girl stumbled down still another wooded slope and emerged suddenly onto an open beach, the blue sea beyond it.

"They've driven us clear to the eastern end of the island!" Allan cried. "We can't go any further and we can't hope to slip back through them!"

Lita halted, seemed to make sudden decision. "Yes, you can get back through them!" she told him. "I'll stay out here on the beach and they'll rush out toward me when they see me. It'll give you a chance to get back through the woods!"

"But I can't go like that and leave you here for Hara to capture!" said Allan in dismay.

"Why not? It wouldn't be reasonable for you to stay here and meet Hara, would it? You know what he would do to you!"

Allan shook his head troubled. "No, that wouldn't be reasonable for it wouldn't do you any good. But even though it's unreasonable I don't like to go—"

"Go and go quickly!" Lita urged, pushing him back toward the dense woods. "They'll be here in a moment!"

Allan Mann stepped reluctantly toward the woods, entered the concealing brush. He stopped, looked back to where Lita stood on the beach. He could now hear a tramping of brush as the pursuers approached.

He felt somehow that there was a defect in his reasoning, something wrong. Yet search as he might he could find nothing unreasonable in his conduct. He had never seen this girl before the preceding day, she was a life-term unreasonable, and altogether it would be completely irrational for him to imperil himself further with the atavistic Hara for her sake. This was indisputable yet—

A big form crashed through the brush close beside the hiding Allan and a triumphant bellow went up from Hara as he emerged onto the beach and saw Lita. Before she could turn on him Hara had grasped her arm, tossed her spear aside. The next instant all of Allan's faculty of reason was forgotten as with a crazy red tide of fury running through his veins he leapt out onto the beach.

"Let her go!" he yelled and charged on Hara with uplifted club.

The red-haired giant spun about, released the girl and as Allan swung in a mad blow struck out with his own club, shattering Allan's weapon with stunning force and knocking him back onto the sand.

"So it's you!" gritted Hara. He dropped his own club, clenched his huge fists. "All right, get up and take what's coming to you this time!"

Allan felt as though some resistless outside force was bringing him to his feet and hurling him toward Hara.

He saw the hard, scowling face through a red mist and then it shifted and as his clenched hand suddenly hurt him he was aware that he had struck Hara a stinging blow in the face.

Hara roared, swung furiously. Allan felt a dazing impact and then was aware that he was scrambling up again from the sand and that something warm was running over his cheek.

He flung in upon Hara and this time raised both clenched hands and hammered with them at the red-head's face.

Something hard hit his chest with stunning force, and the world, the beach, the blue sea and sky rocked wildly.

His vision cleared momentarily and he saw Hara's raging face and flailing fists, glimpsed beyond him other ragged men who were yelling as they watched, and then again the feel of hot sand on his back made him aware that he was on the ground and made him struggle up and forward.

He jabbed blindly with his fists into the red haze in which Hara's face seemed dancing. There was something running in his eyes that kept him from seeing well but it seemed to him that Hara's face was bloody.

Something colliding with his head forced him to his knees but he swayed up and struck again with both fists. Now Hara's eyes held astonishment as much as anger. He was backing away as Allan swung crazily.

Allan felt his strength fast running away, hunched himself and then drove forward both fists waist-high with all the weight of his body behind them. He felt smashing blows on mouth and ear as he struck, but in the next instant heard a gasp and glimpsed Hara with face gray toppling over on his side.

Then Allan was conscious of the bright sand of the beach running up to meet his face. There were men yelling and Lita's voice crying something.

He was aware of Lita's arms supporting him, her hands wiping something from his face—her hands—

Her hands became suddenly big and rough. He opened his eyes and it was not Lita at all but a white-clad guard who stood over him.

Allan stared beyond him and saw not beach and sea but the metal-walled interior of a small flier. He could see the back of a pilot sitting in the nose of the craft and could hear the roar of air outside.

"Conscious at last, eh?" said the guard. "You've been out for half an hour."

"But where—how—" Allan struggled to say.

"You don't remember?" the guard said. "I'm not surprised—you were just passing out when we got there. You see, your sentence on the island was only one day. We came to get you and found you'd apparently been having trouble with one of the other unreasonables, but we picked you up and started back. We're almost back to City 72 now."

Allan Mann sat up, utterly dismayed. "But Lita! Where's Lita?"

● The guard stared. "You mean the girl unreasonable who was there? Why, she's still there, of course. She's a lifer. She made quite a fuss when we dropped down and got you."

"But I don't want to leave Lita there!" cried Allan. "I tell you, I don't want to leave her!"

"Don't want to leave her?" repeated the astonished

guard. "Listen, you're being unreasonable again. If you keep it up you'll get another sentence to the island and it'll be more than a day!"

Allan looked keenly at him. "You mean that if I'm unreasonable enough they'd send me back to the island —for life?"

"They sure would!" the guard declared. "You're mighty lucky to get off with one day there this time."

Allan Mann did not answer nor did he speak again until their destination was reached and he faced the Director once more.

The Director looked at his bruised face and smiled. "Well, it seems that even one day on the island has taught you what it is to live without reason," he said.

"Yes, it's taught me that," Allan answered.

"I am glad of that," the Director told him. "You realize now that my only motive in sending you there was to cure you of unreasonable tendencies."

Allan nodded quietly. "It would be about the most unreasonable thing possible for me to resent your efforts to cure and help me, wouldn't it?"

The Director smiled complacently. "Yes, my boy, that would certainly be the height of unreason."

"I thought it would," said Allan Mann in the same quiet voice.

His fist came back—

The guards were wholly unsympathetic as their flier sped with Allan Mann for a second time toward the island.

"It's your own fault you got a life-sentence on the island," the chief guard said. "Whoever heard of anyone doing such a crazy thing as knocking down a Director?"

But Allan, unlistening, was gazing eagerly ahead. "There it is!' he bawled joyfully. "There's the island!"

"And you're glad to get back?" The chief guard gave up in disgust. "Of all the unreasonables we ever carried, you're the worst."

The flier sank down through the warm afternoon sunlight and poised again above the sandy beach.

Allan leapt out and started up the beach. He did not hear what the guard shouted as the flier rose and departed.

Nor did he look after it as it vanished this time. He pressed along the beach and then through the woods toward the island's western end.

He came into the clearing where was the village of cabins. There were people in the clearing and one of them saw Allan Mann, ran toward him with a glad cry. It was a girl—it was Lita!

They met and somehow Allan found it natural to be holding her in the curve of his arm as she clung to him.

"They took you away this morning!" she was crying. "I thought you'd never come back—"

"I've come back to stay," Allan told her. "I'm a lifer now, too." He said it almost proudly.

"You a lifer?" Rapidly he told her what he had done.

"I didn't want to stay back there. I like it better here!" he finished.

"So you're back, are you?" It was Hara's bull-voice that sounded close beside them and Allan spun with a snarl on his lips.

But Hara was grinning across all his battered face as he came forward and extended his hand to Allan. "I'm glad that you're back! You're the first man ever to knock me out and I like you!"

Allan stared dazedly. "But you surely don't like me because I did that? It's not reasonable—"

A chorus of laughs from the men and women gathered around cut him short. "Remember that you're living on the island of unreason, lad!" cried Hara.

"But Lita?" exclaimed Allan. "You can't have her—you—"

"Calm yourself," advised Hara with a grin. He beckoned and a pert blond girl came out of the others to him. "Look what was left by a flier while you were gone, and with a life-sentence too. I forgot all about Lita when I saw her, didn't I, darling?"

"You'd better," she advised him, and then smiled at Allan. "We're getting married this evening."

"Married?" he repeated, and Hara nodded.

"Sure, by the old ceremonies like we use here. We've a religious preacher here that was sent here because religion's unreasonable too, and he performs them."

Allan Mann turned to the girl in his arm, a great new idea dawning across his brain. "Then Lita, you and I—"

That evening after the double marriage had been performed and those in the village were engaged in noisy and completely irrational merrymaking, Allan and Lita sat with Hara and his bride on a bluff at the island's western end, looking toward the last glow of sunset's red embers in the darkening sky.

"Some day," said Hara, "when there's a lot more of us unreasonables we'll go back there and take the world and make it all unreasonable and inefficient and human again."

"Some day—" Allan murmured.

THE END.

What Is Your Science Knowledge?

1. What will be one change to have occurred in our environment by the year 15,000 A. D.? (Page 928)
2. What would happen if atoms could be stripped of protons and electrons? (Page 932)
3. What are the views as to the nature of Jupiter's surface? (Page 903)
4. What is the surface gravity of Jupiter? (Page 904)
5. What is the "red spot of Jupiter"? (Page 904)
6. How is oil pumped across country? (Page 951)
7. How is the presence of oil detected underground? (Page 952)
8. What must be the quality possessed by any death ray? (Page 940)

THE MOON DOOM

By WESLEY P. BAIRD

WHAT HAS GONE BEFORE

● Wilfred Hartley, amateur astronomer notices a strange body approaching the moon's orbit. Unsuccessful in arousing official interest in it, he calculates that if it hits the moon it will send Luna possibly shooting toward the earth.

The invader turns out to be one of the asteroids, Ceres or Pallas about 300 miles in diameter that is plunging wild through space. It hits the moon, apparently breaks into fragments and topples the moon out of its orbit. For days the world watches in uncertainty and then it is perceived that it has turned inward in its path toward the earth.

Tidal waves begin to spread over the coastland. His Staten Island home submerged, Hartley makes his way over the Island toward New York. He saves Witherspoon, a young aviator, from some thugs, and with Witherspoon, in the latter's plane flies over New York to see the city almost submerged under water.

Flying inland, the two men land near Harrisburg, Pa., in order to refuel their plane. There they meet a group of refugees headed by an astronomer, Downer, from the Princeton Observatory. Hartley tells Downer of having seen Ceres nearing the earth just as they were leaving New York. Hurriedly Downer makes some calculations. Hartley has a plan for saving them all, which he confides to Downer. Gathering all of their supplies they get into the plane and race toward the heavens just as the moon seems ready to crash on the earth.

NOW GO ON WITH THE STORY

● Outside, the moon was falling in a swift spiral to the doomed earth, one half hour earlier than the calculations made by Dr. Downer had indicated. Hartley shouted: "Into the plane, everybody!" as he raced through the hangar toward the air-sealed cabin plane, but he knew it was all over. That time difference, due no doubt to errors in his naked-eye observations on the fragments of Ceres, meant that the moon would crash, and his fantastic scheme for saving these eight people, pitiful remnants of a lost earth, would fail.

Yet he hustled the bewildered group into the cabin as feverishly as if there were a chance; spent precious moments in checking the interior to make sure there was not the slightest air leak. Witherspoon, the aviator, his round youthful face taut, was already at the controls, watching him like a hawk. Downer stirred fitfully in the sleep of exhaustion that had overwhelmed him.. The others huddled together, sensing disaster, yet quietly resigned.

Already the ground beneath was weaving; the wooden shed of the hangar rocked crazily to the gravitational pull of the whelming satellite.

"Take off!" Hartley shouted.

Witherspoon gave her the gun. The great plane vibrated to a full-throated roar and lurched down the runway to the open doors. It gathered speed and shot into the outer world, its front wheels already lifting in flight.

It was not a moment too soon, either. Even as the tail cleared the hangar, the huge shed seemed to lift bodily into the air, then collapsed soundlessly behind them like a pack of cards. The battered terrain of Harrisburg spumed up to meet them in giant crests; gigantic chasms of unfathomable depth yawned underfoot. The earth's crust was a liquid fury; nothing could survive this smashing of a world.

"Altitude!" Hartley fairly screamed.

Witherspoon tilted the plane at an insane angle. Everyone slid in a tumbling heap to the rear of the cabin. He barely cleared a particularly vicious upthrust of Archean rock that had lain buried since the birth of the world. Up and up they climbed, the motors roaring and laboring.

Hartley picked himself up, caught hold of a strap, and gazed through the glassed panel. The sight was unutterably terrifying!

The heavens were gone, blotted out! A world appeared above, a vast convex horizonless plain. Jagged mountain ranges intersected it, with their peaks hanging downward, describing irregular jerky arcs. The plain tumbled and bulged with interior distress. Already Hartley saw great masses of rock detach themselves from a heaving surface, come flying downward. Beneath, the earth leaped

THE "MOON DOOM" GOES ON

The first installment of this "unfinished story" was written by Nathaniel Salisbury, the best second by William Lichtenstein, and the best third, published herewith, by Wesley P. Baird.

We want you, our readers, to get into this competition on the final installment and see who can write the best one. The drama or tragedy is nearing its end. The job of completing it is up to you.

The following are the rules and conditions:

1. In this issue is published the third of four installments of this story. The final installment will be published in the June, 1933, issue.

2. The writing of the final installment is open to all of our readers.

3. You are invited to write your version of the best fourth installment completing the adventures of Hartley, Witherspoon, and the party of Professor Downer.

4. The final installment must be between 3,000 and 4,000 words.

5. For the best final installment submitted to us, which we will publish in the June issue we will pay ¾ cent per word on publication.

6. Everyone, whether or not he has contributed to our pages, who is not an employee or member of a family of an employee of the Stellar Publishing Company, is eligible to join this contest.

7. The judges will be the editors of Wonder Stories and their decision will be final.

8. The submitted installments will be judged on the following basis

a. They must be reasonable, plausible and written as closely as possible in the style of the first three installments.

b. The final adventures and the science used should be original, refreshing and exciting. We do not want impossible rays, machines and gadgets.

c. The characters are admittedly in a bad plight. How can they be saved, or will they be saved? You are asked to carry on their adventures as cleverly as possible to the end.

d. All entries must be in our hands not later than April 12.

e. No entries will be returned unless full postage is included and a definite request is made for their return.

even more convulsively. Above, destruction; below, disaster! Two gigantic gridirons flattening down upon each other, and a puny, man-made plane with eight earth-bound creatures soaring bravely between, soon to be ground to primal atoms.

Downer heaved himself up, all exhaustion gone, and peered out. Nothing in the heavens but the moon.

"No trace of Ceres?" he asked quietly.

"None at all, sir," Hartley said remorsefully. "It's all my fault. My observations—"

"Were remarkable, considering you had no instruments," the famous astronomer answered kindly. "Besides, it would have made no difference. We have only a few more minutes to live."

The light had paled to a grim twilight. Only a small section of either moon or earth caught the slanting rays of an invisible sun. The earth glared redly in splotches; columns of fire erupted in smothering blasts.

A great glowing mass rushed past the plane with a terrifying swoosh, missing them by feet. A cometary streamer of fire trailed after. The plane gyrated and tumbled in the vast sucked-in current of air.

When they had caught their breath, Downer said philosophically: "That was from the moon. She's already ripped apart."

Up and up they climbed; twenty thousand, thirty thousand feet.

Miriam Mitford's nerve gave way suddenly. She was the astronomer's middle-aged sister.

"What are we doing this for?" she screamed. "We are going to die! Let me out, I say, let me out!" She lurched, panting, toward the door of the cabin.

Her husband caught her just in time, dragged her back before she could undo the lock.

"Don't you understand, Miriam," he soothed, "we've got no place else to go. We *must* stay here."

"I don't want to," she whimpered, and went into hysterical tears. Her brother opened a black bag quietly, withdrew a long needle, sucked in a colorless fluid from a bottle, jabbed the tip into her arm. Her moans died down gradually, and then she went fast asleep.

It was now past four o'clock. The plane was laboring at the height of its flight; some thirty thousand feet. It could climb no further. Hartley looked out, estimated the moon less than four hundred miles overhead. Mountains were tearing loose, falling with accelerated velocity. The plane rode in a rain of flaming, rushing rocks. Any moment they might be struck and hurled to eternity.

And still no sign of the heavens. The plates of the gridiron were nearing each other. Nothing seemed able to stop the inevitable crash!

The plane gave a great lurch, stood up on end, swirled around, nose-dived, then swept upward with uncanny breath-taking speed. If they hadn't been foresighted enough to have attached themselves by straps, every one of them would have been killed in the erratic gyrations.

Witherspoon, spinning round and round, came topside long enough to look at the altimeter. It registered only twenty thousand feet now, yet the sensations they suffered showed that they were accelerating upward at enormous speeds.

● He looked out at the dark, crashing sky. A mountain leaped by, its jagged cliffs clearly etched in the flare of atmospheric friction. Lightning flamed amid tumbling rocks.

"Wh-what's happened?" he yelled, as the whirling grew less dizzy.

Downer held grimly to his straps.

"The atmosphere is leaving the earth, rushing toward the moon."

"But why?" Murchison panted. "The earth's attraction is superior. That's why the mountains of the moon are falling toward us."

"True. But remember that the gases of the atmosphere have molecular velocities ranging from one to five miles a second. With the lessened gravitational pull of the earth, due to the counter tug of the moon, those molecules whose direction component is outward, are quitting the earth. We're going with them."

"That means we're heading for the moon!"

"Probably," Downer agreed.

"Then—then—"

"Don't hold out any false hopes, sir," Hartley interrupted. "We'll be crushed if we do, and crushed if we don't."

"Exactly," said Downer.

There was silence after that. Each man and each woman was inwardly preparing himself and herself to meet death.

Only Witherspoon had no chance to think. The controls jerked completely out of his grip, yet he continued to wrestle vainly with them. Up and up they roared, the wind of a great hegira roaring with them. They must be twenty miles above the earth's flaming surface by now. No human beings had ever climbed that high before, and lived.

Hartley gave a last despairing glance. A few hundred odd miles only separated moon from earth. Far to the east, a thin glimmer of light ran knife-like along a horizon. Even as he watched, the edge widened; the long bar of light grew stronger. The farther rim of the moon was lifting over.

"Look!" he cried, filled with a faint ray of hope. "The moon is passing. Maybe it won't crash!"

"It must—next trip, then," Dr. Downer replied with a weary shrug.

Burton, who had been staring upward as if fascinated, said suddenly: "My God! The moon is breaking up!"

Sure enough, the vast overhanging world of rock and lava was smashing to smithereens before their very eyes. The earth's tidal pull at such close proximity had proved too much for its satellite. There was a great soundless explosion. The moon dissociated into a million flying fragments. Huge hundred-mile asteroids ground against each other, went tangentially off into space. The sky was a blaze of ruin and flaming falling fragments.

The plane leaped forward under new impulses; worlds seemed to drop down upon them, and then they were enveloped. There was a slanting crash, a roar of furious beating sound, and then—darkness! The occupants of the plane had been knocked unconscious.

. . . . . .

Hartley groaned feebly. He tried to move, but couldn't. He was a prisoner; where, he did not know, but the dungeon was underground. It was pitchy black; and the sea roared against its subterranean walls. He struggled, but the chains held him tight. He was under sentence of death.

Then as the universe seemed to roll over on him, he opened his eyes. The plane was still spinning crazily; rocks, trees, unmentionable bodies swirled alongside in almost visible gusts of air.

It was the straps that had given him his nightmare sensations, saved him from death. The others were moving too; Witherspoon drew an unsteady hand across a gashed forehead.

"We—we struck something," he whispered.

No one could answer; the frightful tumbling was too dizzying. Round and round they spun in their straps.

Yet Hartley noticed something odd. His body swung easily, without the sensations of lurching weight that should have been. He almost floated. The spinning slackened a bit; they moved in long regular circlings. It was novel, yet somehow exhilarating.

"We struck something," Witherspoon repeated.

Hartley strained his neck. It was clearing outside; the debris of two worlds still shot past the thick sturdy glass in a rapid stream, but there were gaps.

Through them the earth could be seen, a great convex ball, stretching illimitably. At least three hundred miles below! Huge bulges showed on its seamed surface like warty protuberances.

"Where is the moon?" he cried.

Downer shook the dripping blood out of his eyes.

"The moon," he said, "is that collection of rocks and fragments shooting by. The moon has become a ring of asteroids and dust, to encircle the earth eternally like Saturn's rings. Yet I can't understand; there must have been an outer opposing force to account for such complete disruption. Where is—?"

"Ceres!" said Hartley eagerly. "Look, there she is!" He pointed to the far western, fragment-filled sky.

Something that looked like a huge elongated dumbbell swam majestically at least several thousand miles away. Straining sight showed that it too was a whirling mass of orbital rocks.

Downer nodded with the satisfaction of a scientist.

"Then the calculations were correct. That half hour error must have been counterbalanced somewhere. Ceres exerted just enough force to pull the moon out of its descending spiral, and the interplay of earth and asteroid forces split the moon up into a ring. Earth then is still intact!"

Captives of the Moon

● Mrs. Downer, who *had* to be practical, considering that she was married to a famous scientist, said wearily:

"You have settled the question of earth, moon and Ceres, but where are *we?*"

Hartley and Downer stared at each other blankly. In the heat of scientific discussion they had lost sight of immediacies. Where *were* they? Three hundred miles up, in an airplane, where there should be no air. Were they dropping back to earth to smash, or were they suspended like Mahomet's coffin, balanced nicely between gravitational pulls, to follow a whirling orbit around the earth forever, an integral component of the moon ring?

"That's what I've been trying to tell you," said Witherspoon in an awed whisper. "Look through the glass port this side of me."

All eyes turned. Half shielded by the aviator's swinging body was a small glass slide; the rest was blank curving wall. No wonder they had not noticed before. Their sight was led into a rocky cleft that closed darkly hundreds of feet below. Thin light streamed into the interior from cracks to the outer heavens. The huge cabin plane was wedged solidly into something.

Hartley and Downer fumbled at their straps with trembling fingers. The others followed suit. Only Mrs. Mitford swayed in her bonds, a peaceful smile on her dreaming lips.

Hartley bounded forward. "Look out," he cried in warning as he soared suddenly toward what was then the ceiling of the plane. His head bumped smartly and he rebounded back to the other side.

"Very little gravitational force," he said, rubbing his head. After that they were all careful, moving with slow easy movements, avoiding all sudden jerks. They literally swam their way to the port windows, as the nearest to the strange cleft in which they were wedged.

They were on an asteroid; a great, jagged irregular mass of rough-hewn rock rotating on an irregular axis. The earth seemed to swing slowly, but jerkily up into the heavens. Their plane had somehow contacted in its mad upward swirl a fragment of the moon. They were wedged into a new satellite, moving around the earth in a definite orbit. Barring collision with other flying rocks, it would continue on its appointed path forever.

Downer and Hartley looked aghast at each other. They knew the implications better than the others.

"But how did we get here?" Mitford, the engineer, asked with quiet restraint.

"Earth's atmosphere was pulled up in a huge bulge to meet the moon, and we went with it," replied Downer.

"That's fine," Burton interposed eagerly. "Then we can swing loose, and fly back to the earth."

Downer shook his head gravely.

"I'm afraid it's not as easy as all that. Either the atmosphere kept right on going and dissipated far out in space, or it retracted upon the earth after the moon's pull lessened by its breaking up into a ring. There should be no trace of atmosphere on this asteroid."

"And in the second place," said Witherspoon, "The nose of the plane must have been smashed to bits, not to speak of the propeller. It's a wonder how we managed to contact without cracking up altogether. We'd have died instantly then. Not that it wouldn't have been better," he ended bitterly.

Hartley said almost gaily: "We've survived by a series of miracles so far. Perhaps another will happen." He sniffed anxiously. "The air is beginning to stale. We had better break out one of the oxygen tanks. I wonder how long they'll last."

Mitford looked the tanks over carefully. There were six of them.

"I'd say," he remarked, "about five or six days, for the eight of us. But inasmuch as there is no provision for removing exhaled carbon dioxide, I'd cut it in half; say, three days."

"And then?" Murchison asked anxiously.

Mitford shrugged. The answer was obvious.

"Maybe there's air outside," Mrs. Downer suggested hopefully.

Her husband shook his head. "Not a chance. This asteroid's too small to have been able to hold any of earth's escaping atmosphere."

"How do we know?" said Hartley suddenly. "We don't know how big it is."

"Why not go out and explore?" Witherspoon jested bitterly.

"Of course," was the surprising retort. "Look." Hartley rummaged among their supplies, pulled out two complete rubberized suits with helmets attached.

"I found them in the locker of the plane," he said proudly. "The pilots used them for upper-air repairs while the plane was in flight. I'll take one; who'll come with me?"

Everyone spoke at once, but Witherspoon cut in decisively. "I'm the pilot. I'll have to examine the nose of the plane, to see what damage has been done."

His claim was conceded, albeit grumblingly. The two men swiftly donned their strange outfits; the helmets were screwed into position by the others. There were tiny oxygen tanks inside, good for about two or three hours without renewal.

They moved lips and spoke, but what they were trying to say could not be heard outside the helmet.

● Downer took command. "Move back, everybody, to the farthest corner," he said. "When they open the door, there'll be a rush of air that's liable to sweep you out. Lucky it's a slide, otherwise they'd never be able to close it again."

He himself moved over to the wall where the button control was, strapped himself in position, saw to it that the oxygen tank was spraying at an increased rate, then gestured.

The two men understood, took their places directly in front of the slide. Downer pressed the button.

The door slid creakily open; there was a terrific swoosh as the air sucked through; and both were catapulted into outer space.

Hartley waved his hand as he saw the flattened faces of his companions against the glass. Then he gingerly essayed a step. He bounded some fifty feet high. Horrified, he tried to force himself down again, but his frantic efforts were useless. Witherspoon, holding on tight beneath, gesticulated furiously.

For one frightful moment he thought he was lost, then he began slowly to settle. It took a full minute for his questing foot to touch the ground again.

The asteroid they had crashed on seemed about fifty miles in diameter, if one could consider such irregular cleavage as a sphere. It was the wildest possible landscape; a wilderness of upthrust lava-like rock hewn out of the interior of the moon. All around them, wherever they looked, were huge whirling masses, filling the sky. The sun, filtering through the maze, illumined their suits, made them pleasantly warm. If it hadn't been for the protective fragments of the ring, the dazzling orb, beating down through atmosphereless space, would have been unbearably hot.

Their suits bellied out from the pressure of the air within, proving that there was little, if any atmosphere outside. The asteroid was not livable!

Off to one side was mother earth, swinging in an irregular arc as their own planet rotated crazily. Hartley looked at it longingly. It was pitted and scarred; there was a peculiar bulge on the American side where the moon had approached most closely. The oceans had run down off the upthrust plateau, formed an immense basin that surrounded the rim, and no doubt covered all Europe and Asia on the other side. Huge clouds scudded over the face of the earth, black storm-tossed affairs that indicated furious downpours over vast areas. That meant a goodly part of the atmosphere had remained or been retracted. Earth then was livable, though under strangely new conditions.

They moved cautiously and carefully over the broken surface until they had passed around the flier's hull. A good fourth of the stem was in the crevice, stuck fast. That was what held it to the surface of the asteroid.

What they saw so far was undamaged, except for a few dents in the aluminum skin. Witherspoon made a sign and crawled through an opening about three feet wide between hull and rock. Hartley followed.

Witherspoon used his flash, played it over the surface. The plane was wedged at two points; beyond that there was clearance. The plates were badly buckled, but as far as they could see the bolts held tight. They crawled in farther until they came to the nose.

The aviator held the flash carefully and examined it. There was no doubt about it; it was badly crumpled. Here and there a bolt had sprung, holding by a mere thread. The slightest jar would open the plates. The propeller too was badly warped.

To Hartley's untrained eye, it looked a hopeless mess, but the young aviator turned a face of exultation toward him. His lips mouthed soundless words. He thrust the torch on his companion, fell on his knees before his kit. There was just room enough to work in.

At last he arose, shut the kit with a snap, leaving only the welding arc outside. There was a grin of satisfaction on the face within the helmet. Hartley took that to mean that the plane was in working condition again, but—what of it? The aviator was not enough of a scientist to realize the insuperable difficulties in the way.

They crawled back until they came to one of the points of rock that held the plane. Witherspoon motioned a halt; flicked the welding arc into life. The points began to glow.

He held them against the base of the narrow needle. The rock slowly heated became redhot, and after interminable minutes fused through, breaking off into a scattering of pieces.

The plane was held now only by one point!

Silent perforce, they crawled out into the open again. Hartley dragged his cramped limbs upright, took a last look around before they returned to the ship. The air was fouling rapidly in the helmet. Yet he hated to go in; he knew he could only report utter hopelessness, in spite of his companion's herculean labors.

His gaze travelled idly eastward, fixed with a jerk. Something was falling out of the heavens, free of the weltering swirl of the moon's progeny. A great asteroid, almost as large as their own, looming momentarily to enormous proportions.

It was coming on a driving slant; there would be a collision!

He shouted, heedless of the fact that he could not be heard. He caught Witherspoon's arm, pointed. At once they started to run, back to the ship, almost forgetful of the danger of rapid movements.

Hartley moaned over and over to himself: "This is really the end! After everything!"

The door slid open almost as they stumbled to the verge. Downer had been watching. They forced their way in against the blast; the door closed.

Witherspoon frantically tugged at his helmet; Mitford ran to help him. He tossed it with a crash behind him; did not wait to remove the suit, but sprang to the controls.

Everyone watched him in fascination, while Hartley explained rapidly. "There'll be a collision in seconds; nothing can help us."

(Continued on Page 985)

MEN WITHOUT SLEEP

By EDWIN BRUELL

● This little yarn is something different, a story in a new vein for those who like the bizarre features of science.

Anyone who has remained awake for more than twenty-four hours will appreciate the sensations that our author describes of the men without sleep. No doubt the abolition of the necessity of sleep might provoke great and beneficial changes for us; but there might also be corresponding disadvantages and dangers that we cannot now predict.

● The Place of the Rakish Hat was tingling with the flow of philosophy and chatter that overwhelmed it every night. Thriving artists, hoping and praying artists, and general eccentrics gathered there to tell how they found life and why.

Because he had declined a chair of honor, Joyce Blythe lounged in the back of the long, narrow inn. Ever since he had shocked the artist fraternity with his daring symbolism, he was zooming for the first rank. Even the critics had begun to see the young man with the impulsive dash and the soft-speaking, mystical voice. He had begun to surpass his works with himself.

A fellow artist laughed the bubbles into a glass of rare wine that was disappearing fast under his ravages: "Oh, well, comrade, wrap all your doubts around a thistle; that's my war cry to keep me going. Tonight I see Therese." He patted his friend, unwound himself, and weaved his way out of the gay mass.

Joyce lounged as before, wagging his head profoundly as he spoke to no one in particular: "A man to be loved—bold, too, with a giant whimsy. Too bad he has no depth."

As he turned his head, he noticed a shaggy man slunk in the next chair—obviously a man who needed something of everything: A workout on his growth, cleaner rags, food, and a spark of new vigor. A good drink would take care of quite a bit.

Beneath all the growth there was something captivating about the mold of the man's face. The artist's eye was adept. Something about the bewildered idler captured his sympathy.

It was then that the man in the brown cloak came into the corner. It was a drab thing that hung from his shoulders, as though it had never been in sunlight. His soft felt hat was the color of spoiled olives. His back had a certain stoop, and yet he had an erect, commanding manner that was pronounced. He looked like a man who had forgotten to count his years. But what caught the artist most was the glaringly peculiar eyes of the man, eyes that always were bold. Frozen grey, they were, frozen and piercing and yet shadowed with a certain far-away haziness. Those were eyes one never forgot.

The cloaked man was bowing, looking solicitously at the vagabond. "A sad mess, eh?" His gaze meant that he referred to the man.

"Rather much. The poor chap must have known something better before—once. There's something about him that strikes my poor, withering sympathy."

"Yes, an interesting specimen. Suppose we take the gentleman to a place of rest," the man in the cloak suggested.

"Yes, of course. I once lugged around a rickshaw in China, you know."

The rickety stairs had an annoying creak that was constant. "Some day they must be repaired. I'll take care of that," he seemed to apologize.

At the top of a nearly endless set of old stairs they reached a peculiarly rounded, notched opening, like a gap. Joyce stopped. The light was abominably faint.

The other man smiled. "You are startled, eh? It is always so. The novel is always feared. You see, I have doings with the goddess of sleep. We step into a gross, ugly yawn."

Joyce saw it now. They were stepping into the mouth of a great, hideous face that yawned most ungracefully. It was a quaint, old wooden, formation. The air was musty there. Joyce wished to be inside, away from the ghastly distortion.

The man lived in rather plain quarters, Joyce thought. He then noticed the walls. By Jove, it was queer. Here, again, was the same warped conception of art—sheer ghastliness again, nothing symbolic or figurative, but mere slabs off the slicing machine of horror: blood and gore. The man fell a little in Joyce's esteem.

But he was quick to perceive. "Don't mind my art. I hate smiling things, showing off chunks of solid ivory. Animals never grin, except the jackass, only men. Look how free the animals are—no morals and all that. To soothe my mind I take the opposite course, straight through." Joyce smiled himself; here was a man with ideas.

"I'm a dabbler in everything that catches my interest—no deadlines: art, science, the whole lot. Quite a doctor, they used to tell me," he spoke as he treated the victim. Soon he had the man sitting up and looking rather human.

The rejuvenated man told of railway days and flophouse nights. They soon were calling him Flip.

The room was hazy with the smoke of Oriental tobacco when the man in the cloak began to speak. He fixed his eyes on both the men as if to draw them in from a vast nowhere. Then a mysterious vagueness shadowed his face.

"There is something I hadn't yet told you. You have perhaps noticed that I'm not just like Adam and the rest

of the gang. Those who know me are always reminding me of this. And why should I puff out this modesty blather when I know the truth? I am a master of life, and I know it. I've always known it. Nietzsche, if he were here today, would call me the superman."

● He made a magnificent gesture. "Ah, that is life—to stand on the edge of all time and fling out a laugh—to know that you are all that counts and the plan is only a huge burlesque."

He thumped at his well-shaped chest. "There you have me. I have never known boundaries. If there is something in the way, then I chuck it, no matter whose pet it may be."

The artist watched him closely, wondering; the hobo, resting in his new ease, was stirred.

"A long time ago, when I was young Dr. Raynell, fresh from a London medical school, I learned that the animal, man, is no stronger than his slightest craving. I tried to change this stupid law—no luck. It was then that I began to work on his cravings—I found an infinity of imperfections. I found that life was too short to nail them all down. Then I knew the greatest weakness of all: the craving for sleep. I worked for days and nights on my research—yes, my brilliant research; why should I hesitate to use the word? And then suddenly I would have to let my great labor go hang for the temptation of the bed. You laugh when I say I went to bed crying. It is true. I cried with the confession of my weakness, that I could not go on in my revelations before I had snatched a few precious hours away from my life. Then I saw that sleep is a beastly old thief who comes about with the dark. I decided to exterminate him."

"I lost years in trying to save them. But I could see it would be worthwhile, to be able to spend twenty-four hours in the great project instead of this petty dozen or so. I could live twice, and the newspapers would only give me credit for half my maturity. I could have twice the knowledge of normality. Oh, men, if only you knew how I built in those years."

"I threw everything I had into that project. And then one day I had it—a serum to remove the necessity for sleep, to banish sleep forever."

"Why should I burden you? I swallowed it and lived. It was successful, a reality. I never again have felt the senseless desire for sleep. I would stroll down the street, in the early morning or grey night, and watch the faces of the others. And I knew that I had something that nobody else knew of, like a stolen secret. I would laugh behind my mask at their futile, conventional masks."

"So it is today. That is why I yearned to see you, to take you up into the new horizon."

The two men had been transposed to the height of fantasy; still it was intriguing. Dr. Raynell attempted a more personal note.

"You artists, you chosen ones, how about you? You should spend all your time, every moment, working for the magnificent passion, the masterpiece. It is you I have catered to most. More than one of you artists have been transported to the Land-of-Never-Sleep. You artists must devote everything to the great goal, for it's your product that goes stumbling down the years."

"And, Flip, here you are a flophouse rat. I will chuck all your park bench sleeping for you. I will make you a master, one who stands alone."

Joyce looked for a window. It was a great fantastic tangent on which they were flying, entirely removed from the saneness of the commonplace. He paused to listen for the noises of the street. There was a cruel silence. What sort of topsy-turvy was this? Joyce had, innately, a mind that tingled to the bizarre. He could scarcely detect a difference between normality and mediocrity.

"Have I won over the artist?" The doctor's voice was soft yet decisive.

Joyce smiled, a queer smile from a side of his mouth. "Bring on your vodka." The hobo nodded.

● Everything slipped off into a daze, like a heavy fog that leaves only nearness to peer into. They wanted to talk, to move or touch something; but it was somehow as if there were an insurmountable barrier between them and reality.

They heard the muffled chanting of a creed that seemed to come from no place and only catch on to their senses. "Only the slave is master of life. We all are slaves, and truly each man kills the thing he loves. We all must turn slaves to enter the Promised Land, the Land-of-Never-Sleep. I, too, am a slave, to the god of Darkness; you are but slaves to me. Bury the old life seeking the new life. And always a something you lose; always you lose to gain the new life. I, too, have lost—I who worship at the shrine of Darkness, god of Darkness, the god of Truth. The only worthwhileness is truth and knowledge; and what if your fate is dark for such? You are the martyrs to knowledge and truth. Think of it, if you are able."

They never knew how long they had lingered in the twilight land between the two sensations. When they were projected into the place of new impressions, they found that they had lapsed into a hazy cloudiness. The lofty ambition of Joyce had become a shadow. All this was subtle and psychological.

There were other, more striking matters to prove their transition. They found themselves boxed up in a giant garret with a score of others like them. There was a horrible, stupid sameness about all the convert-prisoners of the place. This was reflected most in the sallow pallor of their faces and the illusion of deadness about the eyes.

Once in an especially melancholy time, Joyce heard one of them drawl the story of how one creature tried to escape. "There was one of us, and he was for leaving. He reached the door. And then there came the words of the master, that he was master and the other a slave of the body and of the mind, and what would the outside give to a cringing lout, who had nothing with which to seize it? And he came back and never went again."

Then, at this one high pitch, Joyce had the impulse to rebel and beat at this master; but the minutes had driven away his ambition.

There were no beds about the great dark place. Life was one incessant stretch of work, toil, and labor. There were moments of a sort of regret; but they were fast passing, for the drudgery was all-engrossing. None knew of the passing of time. Daybreak, sunset, spring, autumn, days were nothing. They were within; the world was without.

The drudges, like mechanical men, were stationed at machines of which they knew nothing. At times the product was scooped up without a word, and they worked on. This was research. Humor had no place there; silence and drudgery prevailed. If a mood of protest passed across

their faces, Dr. Raynell knew it and flung out the warning that they were being kept.

In all this barrenness there was an element of the gruesome that varied the life. A few were special workers in "The Room without a Key." This was the place of experiments and cries. Two slaves entered at one time; at another time one returned. He always had deep lines on his face.

Dr. Raynell passed among his creatures with no apparent recognition of their personalities. His head was always high with pride and a careful scorn.

Times would come when a new dazed one would be brought in, and they would hear the doctor say, "Another for my collection." Those who obeyed their creator lasted longest.

Then, once, they heard a sharp, cutting clapping from the favorite spot of the master. They looked upward nearly in a group. It was Dr. Raynell. He spoke in his peculiar, practiced lingo. "I say to you unworthies that once you will hear a bell. And then you shall come, everyone. I will tell you then how I have made life truly my slave. There shall be wine, for wine belongs to great moments. And you shall return, knowing and saying that I am stronger than strength, more powerful than power. The time is soon to be here."

It was something like a new dream to be formed along a long banquet table, to have grub transplanted by a meal. The banquet hall was a dazzling relief that stunned with its contrast. There were brilliant electric lights swelling out the light across the room. Something of the old vitality returned, creeping back into the system like an old slip of a hope.

The doctor rose. His face was filled with light. "My slaves, you will handle yourselves best if you do not acquire too much new-found zest. There is a button at my chair that is rather electrical itself. You see that I have uplifted you for the moment. There are moments when eternity stands still. You have all seen my noble land, of course. I trust that you have admired it as much as I.

"Sleep has vanished. But is this enough? I can not believe it. I would not believe it. I have wrestled with a new problem.

"What is death but one tremendous sleep? No one need ever lapse into this everlasting sleep but a weak-headed simp. Then I had a new serum. At first I had resolved to try it on one of you. But, no; why should one of these be greater than the creator? I am the only power. And my creation is infallible.

"When I drink, the whole plan will be turned inside out." He made a sweeping gesture that carried everything. He held high his blood-red, tinted glass containing the wine and the serum. His eyes were like a pair of blazes. "And now a toast to eternity," he cried. Everyone tilted his glass.

Then it was that the scientist began to stagger. Everyone shot his gaze on his face; it was streaked with conflict. There were signs of a mighty clash beneath. There were moments of doubt. Then as he slumped back, everyone saw.

It was a feeble, shrunken old man that slinked back into the chair—no master there, but only an ordinary mortal again. All the commanding strength of his face had been drained, like a jug of old wine. His eyes which had held fire were now dulled and hollow, like those of a stray dog in the rain. He sat like a man who had sought a confessional and found no one there.

The shock had fallen off the creatures, and they leaped up from their chairs almost in a body. Warnings, fears were overthrown. These victims saw only a feeble failure. Two of them pounced on the old man. Others began to tear away at his clothes. He squirmed and wriggled, tried to speak, but he was cut short with shattering glass that made the blood dart from the top of his sunken cheek to the bony jaw.

● Suddenly the swirling mobbers felt someone new pushing at them. Joyce began to plead with them: "Listen, I say, won't you listen?" They pulled away for a second, still surrounding the man.

Joyce looked wild as he tugged at the mass of men and pleaded earnestly in the quaint speech. "This man who seemed a master—he has the cure for all this. He is a faded old man again. Please don't kill him and ourselves too. Please let him free if only he gives us some of this to bring the old life again. Can't you see this is all that counts? Are we not better dead than in this half-deadness?"

They cried an affirmative, irregular yet certain. They were slow at catching it, but finally the gang ceased, as the last two were jerked away. The two were like wolves as they were held back. The creatures mumbled among themselves or brooded without words. Two followed the man down the hall to a small, secluded laboratory.

He dragged nervously along the floor, a terrible wreck of a man. At the door he peered around fast and saw a pair of furtive shadows and heard a constant rumbling.

He shut out the noise; he hung a stained apron over the keyhole. He had little intuition left; he needed no intuition. He knew that these creatures would get him if life didn't get him first. His heart was there, he knew, twitching at him. He bungled around with his shaky fingers. A precious bottle toppled over; a cheap bottle toppled over.

He had lived the whole course, worked incessantly, forgotten his years, stumbled into a nightmare of throat-mangling and bruises. His head was thumping and bleeding; he wanted to work on it. He wanted to turn out his liquid. It had a tempting color now.

He leaned up against a shelf and fumbled around till he had a plain black bottle. He turned it in his sweat-streaked palm. There were the crossbones. He tipped it over with a certain restraint. A big dirty spoon clinked in staccato against the glass. He pushed the rich-colored jar out invitingly to the center of the table.

Then he slipped off a jagged piece of brown paper and found a pencil on the desk tip. He clutched it in his fingers. And then they came apart, and the pencil slipped away.

So it was that the world wondered when twenty-six bodies came to be found in the yawning attic.

THE END

The Great Oil War

(Concluded from Page 961)

the dead line when the wells would begin functioning again of their own accord.

There was much wrangling and many heated words; a dozen times the whole deal seemed irretrievably off; but Wilmot was a deft mediator. By midnight the last detail had been arranged, and the weary, bedevilled men went to sleep.

Briefly, control of the entire oil industry from oil lands to gasoline selling stations passed into the hands of a corporation to be composed of the Technocratic Council, five outside technicians agreed upon by the negotiators, three economists of international reputation, Secretary Wilmot for the United States Government, and Stoneman as representative of the old order. It was duly noted that the Technocrats had a working majority.

The oil holdings were to be appraised at factual value by a commission of three experts of proven impartiality, and bonds issued for that amount to the stockholders in the conglomerate of oil companies. Dividends were to be paid thereon at the rate of three per cent per annum; two per cent of the bonds to be amortized each year so that in fifty years the entire issue would be retired. There were to be no other charges against the industry; the price of oil to the consumer to be based on cost. The Technocrats were to obtain official immunity for all past acts and alleged crimes.

In the morning a thoroughly disgruntled oil man and two philosphic officials, blindfolded as before, were taken back to Whiteface; while Harmon and Milburn, with several assistants drawn from the technical staff, proceeded westward to the oil fields.

Roode had said: "Take apparatus along, plenty of it; the more mysterious the better. Then let us pray the wells come through as we figured."

Van Wyck wanted to go too, but Roode refused. "One man is enough to risk. There may be a catch in our agreement, in spite of solemn promises. The temptation to break it would be too great if they felt they could seize us all in one swoop."

All that day and night there was no sleep. The Technocrats sat impatiently around their secret beam radio waiting for news from Harmon and the men who had been dropped in the stricken fields.

The following day Harmon's voice came through, jubilant.

"The trick's been turned. I set up the electrical equipment, gave the assembled crowd a splendid show of high voltage lightnings, performed a lot of solemn mumbo-jumbo. All day long I ground it out, sneaking looks at the nearest wells. But they remained dry. The theoretical limit we had set was already past. The crowd started to murmur; they evidently expected something in the nature of a miracle. I explained that it was a slow process, but I could see considerable scepticism. They dispersed slowly, grumbling, dangerous.

"The next morning they were on the spot again. I worked the machines like mad, but they didn't seem to care for the pretty effects any more. They were getting ugly; Stoneman had emissaries egg them on. I suppose he expected to cash in if we failed.

"Some one in the crowd shouted: 'Kill the damn fakers.' There was a rush. I picked up some hand bombs to fight it out when a man came running as hard as he could from No. 53. He was yelling at the top of his voice: 'She's in; she's in!' The mob ebbed a bit at that; then there was a wild rush for the well. I ran too. Sure enough she was gushing; within an hour the rest of them were pouring out oil as though nothing had ever happened. The oil men; engineers, boomers, laborers, think I'm a miracle man; they'll go through hell for us now.

"Signing off; plenty of organization work ahead; picking a skeleton staff. Luck!"

Within half an hour similar reports came through from Milburn in the Panhandle and the man at Long Beach.

Adam Roode heaved a long sigh. Now that success was perched on his shoulders, he seemed terribly aged. The scientists filed in front of him, solemnly shaking his hand, rendering him homage. He had conceived and carried through the most tremendous undertaking in the history of the world. Technocracy was in control of a great industry. The rest was easy. They told him so.

He straightened up again, and shook his head decisively.

"You are wrong, my friends. We are only beginning. We must prove to the world by our management of the industry that we are worthy of control. That is infinitely harder than all the dramatics we have just been through. It is only the entering wedge. Coal, steel, electric power, utilities, banks, are all ahead. Their owners are even more powerful than the oil interests; they are warned against us; they will fight tooth and nail."

Van Wyck cheered. "Splendid! I was afraid there'd be no place for me in a stodgy, efficient world, but I see the millennium has not yet arrived. There'll still be fighting!"

THE END

The Moon Doom

(Continued from Page 981)

Mrs. Downer cried quietly, her sister-in-law, who had awakened from her induced sleep, shrieked, and fainted.

The motor took hold, spat, roared, and settled down to a continuous purr. Witherspoon worked on madly.

He gave her the gas. She jerked, trembled and stopped. The propeller was beating in vacuum. He seemed to realize that; cut off the propeller, opened the muffler, and let the motors roar full-throated. The vibration was terrific; it deafened the occupants of the plane.

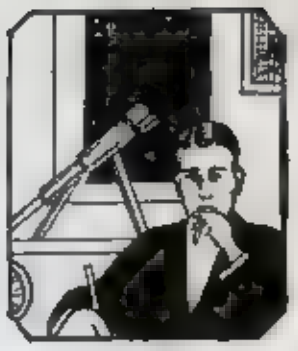
But it worked! The tremendous vibrations rocked the plane back and forth until it jarred loose from the last point of suspension. An additional sidesway, and the great ship bumped and scraped its way out of the crevice.

"We're free!" Witherspoon shouted exultantly as the nose of the plane cleared the last splinter of rock.

There was a grinding crashing sound that swept from stem to stern; the heavens were suddenly black, and oblivion descended on the last of earth's survivors.

(To be Concluded)

Science Questions and Answers



This department is conducted for the benefit of readers who have pertinent queries on modern scientific facts. As space is limited we cannot undertake to answer more than three questions for each letter. The flood of correspondence received makes it impractical also, to print answers as soon as we receive questions. However, questions of general interest will receive careful attention.

Where Does the Energy Go To?

Editor Science Questions and Answers.

Here is a question I would like to have answered. A brass spring is compressed and tied with a platinum wire and immersed in sulphuric acid. The acid eats into the brass but leaves the platinum wire unaffected. The spring cannot expand because it is tied by the wire. When the spring is entirely dissolved, what becomes of its former energy in being compressed? It cannot be destroyed; where does it go?

Maurice Jensen,
Seattle, Wash.

(The case here, which incidentally is an old wag, like the irresistible force and the immovable body, might be likened to a series of stretched rubber bands holding together a lot of marbles. The marbles are the molecules of the brass, the rubber bands are the forces holding the molecules together in a state of tension. Now if one of the rubber bands were cut one of the marbles, released, would fly off. The energy of the rubber band has thus been transformed into kinetic energy. In the case of the compressed spring, the molecules are "stretched" and held together by their mutual attraction. When one is "dissolved" or pulled away from the others it will fly off into the acid; its energy being transformed into kinetic energy. Eventually it will come to rest, its kinetic energy being dissipated, meanwhile heating the solution. This process multiplied innumerable times for the innumerable molecules thus transforms the entire energy of the spring into the kinetic energy of its particles; and later into heat energy in the liquid.—Editor.)

Direction in Space

Editor Science Questions and Answers:

1. What is direction with relation to you in space?

2. How large is Pluto and how far from the sun is it?

Ira C. Wittenberg,
Wheaton, Ill.

(1. In space there is no such thing as direction such as we are used to on earth. There is no up and down, no north or south. In other words, if a person were in a lightless vacuum, he would have no conception of direction. The same obtains in space. The best one can do is to make a reference to the fixed stars. In other words, he can pick out two fixed stars and determine then the angle that he makes with them. If he changes his position, he can determine this change by the new angle he makes with the stars. Now if our man in space also takes two other stars that are in a plane at right angles to the first two stars and again takes his angle between them, he will have a three-dimensional reference to the change in his position in space.

For astronomical purposes direction is also determined near the sun by the ecliptic (which is the plane that the earth sweeps out in its race around the sun.) However, another fixed star would also be necessary in order to fix a reference point so that changes in position in the plane of the ecliptic could be determined. Using the plane of the ecliptic is similar therefore to using the fixed stars, in the first case.

On earth we have two planes of determination called right ascension and declination. Right ascension fixes the angles east and west from a given plane of reference which passes through the sun, the earth and a point in space called "the first point in Aries." Declination is determined by a plane passing through the earth's equator. However, although these references are useful to navigators on earth to determine their earth position, they are hardly useful in outer space.

2. Pluto varies from about 2,800,000,000 to 4,500,000,000 miles from the sun. Its orbit therefore is very eccentric. It is believed that its size is about that of Mars, some 4,000 miles in diameter.—Editor.)

The Planet Vulcan

Editor Science Questions and Answers:

When our science club held its last meeting some of the members brought up the subject of a planet by the name of Vulcan being nearer to the sun than Mercury. About 20% of the members had heard of it and the rest had not. Can you tell us in your columns anything about this planet, whether it exists and its size and distance from the sun, etc.?

Louis Wains,
St. Louis, Mo.

(There has been much talk about an intermercurial planet, but as yet no definite evidence exists on it. This, however, does not mean that the lack of present evidence excludes the possibility of there being a planet closer to the sun than Mercury. It was a great many years after Percival Lowell predicted the existence of a trans-Neptunian planet, that it was finally discovered.

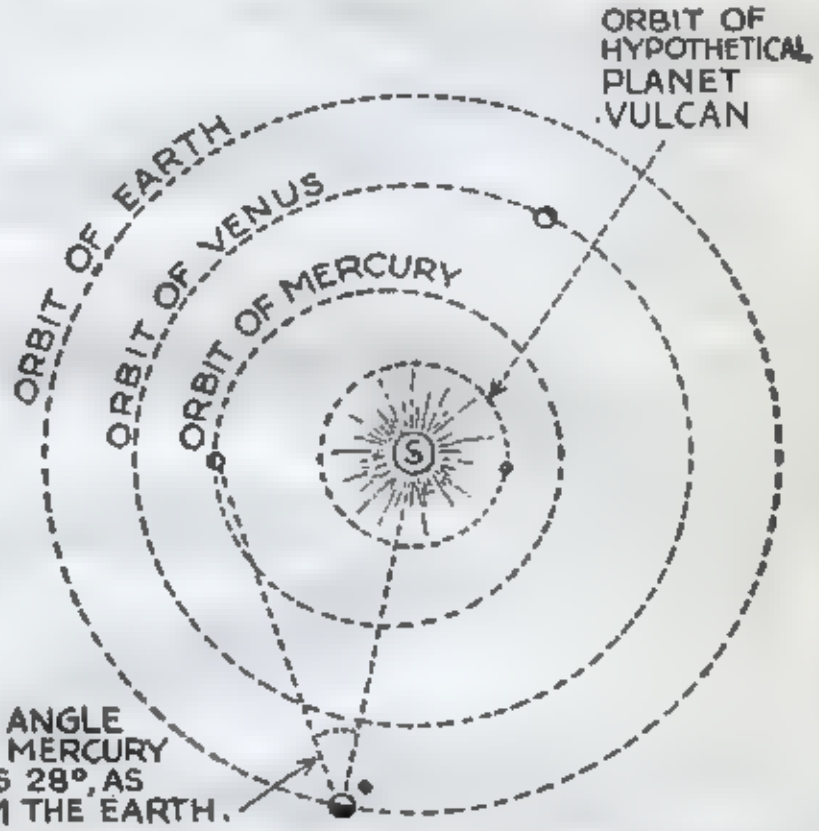
On the interesting question of Vulcan, however, Dr. Donald Menzel, writing in EVERYDAY SCIENCE AND MECHANICS MAGAZINE, has the following to say:

"Belief in the existence of this planet was enhanced by the announcement in 1859 by Dr. Lescarbault, a French amateur astronomer, that he had seen, transiting the sun's disc, a tiny dot which was presumably the long sought-for planet. The name Vulcan, god of fire and forge (particularly appropriate for a planet so close to the sun that its surface would be almost red hot) was assigned to the new object. Observatories everywhere vied with each other for the honor of securing additional proof of the planet's existence. U. J. J. Leverrier, the renowned French astronomer, whose calculations, some years before, had led to the discovery of Neptune, computed twenty-two days as the time for Vulcan to make a circuit of the sun, and predicted when other transits were likely to occur. . . . However, despite the most careful searches, Vulcan has never been seen again.

"The most convincing evidence that the planet is non-existent is a series of photographs secured at the time of total solar eclipses by various observatories. Batteries of powerful telescopic cameras, so aimed that they covered completely the area surrounding the sun where the elusive planet might be found, have been employed again and again; but none of the photographs have ever shown any trace of the hypothetical Vulcan.

"If any object is found within the orbit of Mercury, its diameter would probably be less than 30 miles, and this is scarcely large enough to be called a planet, even if it should be discovered."

In the accompanying illustration, the orbits of the inner planets are shown, and the orbit of the hypothetical Vulcan. Its nearness to the sun, indicating the difficulty of detecting it in the sun's glare, is very evident.—Editor.)


ORBIT OF HYPOTHETICAL PLANET VULCAN
ORBIT OF EARTH
ORBIT OF VENUS
ORBIT OF MERCURY
S
MAXIMUM ANGLE BETWEEN MERCURY AND SUN IS 28°, AS SEEN FROM THE EARTH.

The planet Mercury, whose orbit shown above on the same scale as the earth, is so close to the sun that it is seldom seen with the naked eye. Some astronomers have supposed that there is another, much closer to the sun, which can never be seen except during a total eclipse.

READERS

If you like "Science Questions and Answers" in this magazine, you will find in our sister magazine, EVERYDAY SCIENCE AND MECHANICS, a similar department, greatly expanded called "The Oracle." Look for it, you science fans!

Neutronium

Editor Science Questions and Answers:

Would you settle a few arguments concerning the element neutronium, supposedly found in the small companion of the star Sirius, which weighs a ton per cubic inch? Is there any such thing and would it weigh a ton if a cubic inch were on earth?

Charles Davis,
Bremerton, Wash.

(In the first place, neutronium is not supposed to be an element, but rather a state of matter, formed of neutrons. Dr. James Chadwick, assistant to the famous Lord Rutherford, discovered a smaller system than the atom, it is called the neutron. Its existence was predicted by Rutherford since 1920. The neutron is described as consisting, like the hydrogen atom, of a proton and electron, with this difference that in the latter they are loosely held together, with a relatively enormous space between them.

(Continued on page 991)

IN THIS department we shall publish every month your opinions. After all, this is your magazine and it is edited for you. If we fall down on the choice of our stories, or if the editorial board slips up occasionally, it is up to you to voice your opinion. It makes no difference whether your letter is complimentary, critical, or whether it contains a good old-fashioned brick bat. All are equally welcome. All of your letters, as much as space will allow, will be published here for the benefit of all. Due to the large influx of mail no communications to this department are answered individually unless 25c in stamps to cover time and postage is remitted.

The Canals of Mars

Editor, WONDER STORIES:

It seems that there is a great deal of controversy about the markings on the surface of Mars, as to what they are, etc. Your authors put various interpretations on this phenomena. I wonder if the following explanation might not fit the situation?

Many thousands of years ago there was a volcanic eruption on Jupiter near the equator. This threw out many large and many small masses of volcanic rock. Some of these became the moons of Jupiter and some of them the Asteroids. The largest of these masses escaped from the gravitational pull of the parent planet and became the planet, Mars.

This mass departed at an angle of approximately forty five degrees until it reached its present orbit around the sun. An approximate half turn the other way would have corrected its direction of rotation on its axis and its momentum would carry it on in its orbit.

The rotation of this hot mass would make the surface practically flat and smooth except at the poles where the surface would move much slower. And so the mountains at the Martian poles.

This substance, being of the same consistency, would very naturally form straight cracks and cross-sectional cracks at it cooled off, just as the bottom or floor of a mud puddle often does when it dries up. The large dark spots are pits formed by sections of the lava being hurled away at an earlier stage than the cooling stage which formed the cracks.

The atmosphere of Mars was carried away from the parent planet as the lava mass departed. There was enough moisture in this atmosphere to form a frost or light snowfall each year which accounts for the so-called polar ice caps.

I do not know whether or not this theory has ever been advanced before. If so, I have not heard of it. Would be glad to have someone else's opinion on it.

D. M. Gottfried,
Falls City, Oregon.

(Mr. Gottfried presents a good case for his explanation of the Martian "canals." Our experts on Mars should study this carefully and reply. A number of astronomers have suggested explanations closely paralleling this one of our correspondent; and much fur has flown in astronomic circles, even over the actual existence of the "canals." We invite your comments.—*Editor.*)

Mr. Sharp Replies Again

Editor, WONDER STORIES

I have just read Mr. Miller's comment on "Messengers from Space." While I thank him sincerely for calling this error to my attention so that I may promptly correct it, I hope that my statement, "the greater the velocity the larger the orbit," was identified by your readers at once as exactly the opposite of what I wished to say. This should have been clearly an error in phrasing from the explaining phrase that, "an orbit about the sun is the balancing of linear velocity against the sun's gravitation."

Since Newton first conceived the idea of universal gravitation, it has become too well incorporated in all laws of celestial mechanics for any one fairly acquainted with it, to misunderstand that gravitational influence is reduced in the inverse ratio of the square of the distance. This, of course, would render the per second fall of a body toward the sun proportionately less and the orbit larger.

However, the rule Grinstead applied to his ship holds good. Even had he been as far out as Neptune, or farther, to reach the earth's orbit he would have to *slow up*, fall toward the sun, until his velocity became 18.6 miles per second. This seeming paradox is clearly explained in Young's "Manual of Astronomy." See page 434, Sec. 490, under title of "Acceleration of Encke's Comet."

"At first sight it seems almost paradoxical that a resistance should accelerate a comet's speed, but referring to section 320 we see that any diminution of the velocity will also diminish the semi-major axis. This will reduce the period, which is proportional to $\sqrt{A^3}$ by a greater percentage than it will reduce the circumference of the orbit, which is simply proportional to *a*, as a consequence there will be an increase of velocity above what the comet had in the larger orbit. A comet gains more speed by *falling nearer to the sun* than it loses by the direct effect of the resistance."

I must not admit the whole of Mr. Miller's criticism. He is mistaken when he asserts, "orbits do not depend on anything; they were formed by the gradual condensation of the fiery planetary masses billions of years ago and have not changed since."

Orbits are by no means constant. If the present conclusion of the loss of the sun's mass by radiation is a fact, we are farther from the sun today than we were a year ago and every planet in the system has a proportionally larger orbit. In the case of the moon and the earth there has been much calculation as to the possibility of the moon some day approaching so near the earth that tidal influence will tear it apart. I believe it is fairly common knowledge that the moon is not travelling the same orbit today that it did ages ago, and certainly the orbits of comets are affected by planetary gravitational influence so as to make them change from parabolas into hyperbolas or ellipses.

D. D. Sharp,
Albuquerque, N. M.

(Again Mr. Sharp defends himself valiantly against his critics. Here is a battle royal for amateur and professional astronomers to engage in. Who says that scientific discussions do not grow in our columns?—*Editor.*)

Science Fiction in England

Editor, WONDER STORIES

During the whole of the period in which we have been reading WONDER STORIES, we have only twice had the temerity to address these columns, but the one letter that was published brought such amazingly good results that we are fervently hoping to see this one in print.

This society was formed back in 1927, before any science-fiction had reached England, other than Wells, Verne and a few contemporary "dreamers." On very rare occasions there would come into the possession of the club, a tattered copy of one of the existing American magazines, and such an event was always celebrated with high glee in the club meetings.

After a while the supply became more regular, and in 1929 we were able to obtain at least three magazines every month. In that year SCIENCE WONDER STORIES came on the market, and it is the club's boast that, though we never dare to enter a subscription, owing to perpetual instability, we have yet succeeded in obtaining copies of the magazine for every month, though in some cases we have had to wait many weeks. Now that our position has been greatly strengthened by an affiliation with the I. S. A. of America, we have no doubt that we shall be able to enter a subscription.

Though one of the purposes of this letter is to assure our American friends of our continued existence, we were inspired to write it really, by the immense improvement remarked in the August-October issues. The format of WONDER STORIES has always been a model of neatness and attractiveness, but the culmination seems to have been reached in these previously mentioned months. The extreme simplicity of the contents page has a definite appeal which is worthily upheld throughout the magazine.

And the stories! Since our exuberant enthusiasm might prove a source of annoyance to other readers, we will leave it unuttered. Ever since you published Taine's "Time Stream" we have had no fault to find with any of the stories. In any case no two members of the club hold the same views, so why argue?

As an illustrator Paul is unsurpassable. Especially good are his works for "The Death of Iron." By the way, this story savors somewhat of the "Metal Doom," don't you think?

These correspondence pages are certainly a very interesting department of the magazine, and they reveal a great amount of deep thought on the part of writers, that goes far to dispute the statement once made, that readers of this magazine must be mostly "morons."

The last two cover contents have proved extremely interesting, and the members of the club have a grouch against us because we did not obtain the magazines in time for them to enter the competitions.

If we may trespass on your space for a few moments longer, we would like to thank all those friends who wrote in answer to our last letter, and to assure them and all who read this one, that letters are more than welcome.

Here's to echoing the sentiments contained in Mr. Teeter's letter in the October issue: more "Bugs and Dinosaurs" and less of such casual use of "rays" as we have been lately surfeited with.

With hopes for your continued success,
The Science Fiction Club,
P. Enever, Hon. Secretary,
Rosemead, High Road, Hayes, Middlesex.

(We are glad to note the progress of the English Science Fiction Club, and wish it well. In the home of H. G. Wells, one of science fiction's patron saints, the club should prosper. We advise all English readers of science fiction to associate themselves with the Club.—*Editor.*)

(Continued on page 993)

ON LETTERS

BECAUSE of the large number of letters we receive, we find it physically impossible to print them all in full. May we request our correspondents, therefore, to make their letters as brief and to the point as they can; as this will aid in their selection for publication? Whenever possible, we will print the letter in full; but in some cases, when lack of space prohibits publishing the complete letter, we will give a resume of it in a single paragraph.

THE READER SPEAKS

(Continued from page 987)

Our Leaders Can't Find a Way Out

Editor, WONDER STORIES:

The selection of stories in the March issue of WONDER STORIES is a good one. I was glad to see a long story like "Wanderers of Time," which I gave first place. Although I doubt the possibility of time travel, the story nevertheless is good science fiction and made good reading. The ending sounds like a sequel is on its way.

A timely story is "The Robot Technocrat," by Nathan Schachner. It is too bad that such a machine exists only in fiction, as our present leaders can't seem to find a way out.

A logical way of reaching the future is found in "The Man Who Awoke," by Laurence Manning. Is a sequel forthcoming?

Why did you not start a new serial in the March issue of our magazine? The magazine seems incomplete without one. I hope that one will begin in the next issue. If you cannot list the stories that we may expect next month on the contents page, why not put the list at the end of one of the stories? At least have it some place in the magazine.

I am in hopes that it will soon be possible to add more pages and change back to the square back binding. The monthly issue goes all too fast as it is.

When will Harl Vincent, David H. Keller, Jack Williamson, John Bertin, Stanton A. Coblentz, Epaminondas T. Snooks, D. T. G., John W. Campbell, Jr., Carl W. Spohr, John Taine, Edmond Hamilton, P. Schuyler Miller, and Gawain Edwards return to the pages of WONDER STORIES? New authors I would like to see on the pages of our magazine are: Edward E. Smith, Ph.D., Murray Leinster, Charles W. Diffin and Otis Adelbert Kline.

Jack Darrow,
Chicago, Ill.

(We have tried a new experiment in the matter of serials, that we hope meets with the approval of our readers. Instead of having a serial in which the exciting action is suspended in thin air for a month, we are turning two serials in which each month a part of the story is completed. We refer to the series "The Man Who Awoke," by Laurence Manning, and the "Revolt of the Scientists," by Nathan Schachner. Here you have all the advantages of a serial and none of the disadvantages. How does that strike you? —*Editor.*)

A Militant Anti-Time-Travelist

Editor, WONDER STORIES

The March issue of WONDER STORIES includes two time travel stories. The subject of time travel is one of the most fascinating on which to speculate; yet, I have never seen any strong evidence put for either for or against the possibility of time travelling except my letter which appeared in the January, 1930 issue of our magazine. Arguments have been put forth pro and con but they feature paradoxes only, which in themselves prove or disprove nothing. The following brief statement may clarify the situation, however.

Let us take as a reference point in time, 12.01 a. m. January first 1000. The whole universe is existing at this point. Suppose now that a time traveler begins then to travel in time by changing his time velocity with respect to the universe. He will then cease to exist at that time of our reference point and thus no longer exist at the same time in the universe. He will therefore, have removed some mass and energy from the universe. But this is directly opposed to the law of the conservation of energy and mass which states that the sum total of mass and energy in the closed system of the universe is a constant.

Even Einstein and his yes-man Eddington uphold this principle. It is therefore impossible to travel in time.

The law of impenetrability may also be used to show the impossibility of the occurrence of such paradoxical events as described by your authors. And this is another trump card which I have in my hand but have no time to play now.

I am a militant anti-time travelist and invite and challenge authors and readers alike to try and disprove the above statement if they can. If they cannot let them cease to so blithely describe the wonderful adventures of a time traveler without full cognizance of the fact that it is impossible to travel in time.

William S. Sykora,
Long Island City, New York.

(Mr. Sykora puts time-travelists a hard nut to crack, what with his calling Einstein and Eddington to his defense. We throw the field of battle open to our readers, only remarking that Einstein did throw a bombshell into the old conceptions of time and space. In other words, when we speak of two objects existing at the same time but in different places, we must clarify our notions of what we mean. Thus two men looking at a clock will say that the time is different, if they are at different distances from the clock. So, if one man is one light-second (186,000 miles) away from the clock, and another man two light-seconds (372,000 miles) away, the first man would swear that the time was one second after twelve and the second man would say that it was two seconds after twelve.—*Editor.*)

His Identity Merges

Editor, WONDER STORIES:

You have an idea that "as man goes back into the past his identity will merge with his past identity—like a motion picture film being run backwards"? But that makes a worse mess of things than ever! Look:

It's 1938 and Tom Time Traveller has completed his machine. He goes back to 1926. As he returns, you would have it, he walks backward, talks backward, sleeps backward, and performs all other operations in reverse, through those seven years—at a fast rate of speed, of course. But consider: when he arrives in '26 he has merged with his '26 identity and naturally he has not discovered the principles of time travelling. So Tom goes ahead year by year

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THE READER SPEAKS

till he makes his invention work in '33. Then he skips back to '26 and starts all over again.

Or, if he does not forget on returning to 1926, then he must have *known* in '26 so why didn't he go back to 1919 at the time? You see?

Your latest of contests is most interesting. Sharp's "At Bay in the Void," is the best story of the issue because it is human, fast-moving, and "suspenseful." Bravo for the *four* illustrations in "Wreck of the Asteroid." That's something new; keep it up.

Forrest J. Ackerman,
San Francisco, Calif

(Mr. Ackerman overlooks one thing—that is experience and memory. Ordinarily those are things that we do not lose. For example, a man is physically lying in bed sleeping; but mentally he may be shooting on a rocket to Mars. His dreams are at the moment as real to him as actions are at waking moments. Now the question is—was he at two places at one time, which experience was "real," the physical or the mental? All of which proves that there is more in this thing than meets the eye.—*Editor.*)

More or Less Science?

Editor, WONDER STORIES:

I have been a reader of WONDER STORIES for about two years and have enjoyed the stories very much, but lately I have sensed something wrong. When I bought the March issue I resolved to find out what this was. I made a close examination of the magazine. From cover to cover I searched, reading and rereading stories, comparing descriptions with pictures, in fact doing everything I could think of to find what I thought was wrong. But I was disappointed. I could find nothing wrong with the magazine. As a last hope I read it again. It was then it came to me that there was nothing wrong with the magazine, but something missing and that something was science in the stories. I admit the stories are good, but would it harm them if a little science is inserted? Not pages at a time of text, but little sprinklings here and there to fit in with the story. Some may say that the page in the back is sufficient. Did these people ever consider that only three or four questions could be answered at a time in this manner? What about these small questions that would be useful to know? These questions could be answered in the stories and the reader would derive more benefit from them.

Jack Schaller,
Erie, Pa.

(We are glad to have this suggestion and will consider it carefully. What do our other readers think about it? Do the stories need more science or less? Naturally in our tens of thousands of readers there are tens of thousands of tastes. You can help us best by letting us know as fully as possible what your individual tastes are, and not allow us to guess at them.—*Editor.*)

The Robot Technocrat

Editor, WONDER STORIES:

I have been a reader of WONDER STORIES for some time, but I enjoyed "The Man Who Awoke" more than any. Of course Mr. Manning will write what happens to Norman Winters when he awakens again? Another thing that I liked about the March issue was the cutting out of the serials.

I almost forgot that I have a brickbat for you. What is science fiction about "The Robot Technocrat"? Just because it was in the future and some kind of a machine was used, did that make it science fiction? The whole story was pretty poor too. Please do not forget to tell Laurence Manning to continue the adventures of Norman Winters.

Harold Kritzer,
Newark, N. J.

(Please do not tell us that we erred so grieviously in publishing the "Robot Technocrat." We were under the impression that it was good science fiction because it postulated one possibility, to wit, assume that a machine could be built to do, thus and so. What then would be its affect upon human lives and destinies?

We know that much of the confusion of our lives arises from our lack of knowledge of the consequences of our acts. So just as we might build a machine to project a mathematical curve or solve a problem in calculus, so we might hope to build a machine to project the future of human events.

That's our defense, good or bad. We throw our case on the mercy of the court.—*Editor.*)

Slipping

Editor, WONDER STORIES

As a recent—that is, within the last two years—convert to science fiction, allow me to express my views on one or two subjects, and ask a few questions.

I have recently completed a collection of your science fiction magazines, having obtained all the numbers here, at reasonable prices, although there is a considerable demand for them. They circulate fast, however, which makes them easier to obtain. I have read "Air" and "Science Wonder" only up to early 1930, however, so far. Having read only here and there in the recent issues, I am not altogether sure of my ground, but there does appear to have been a slipping back of your magazine recently. It is considerably smaller, less well bound, and I don't believe the stories are as good. How the quality compares with 1930 or 1931, I am not yet prepared to judge; I'll write you on that later.

Assuming that what I have said is true, what is the reason? I know from your reputation that progress is your middle name—that you do not deceive yourself—that you would realize a situation, and be alert to remedy it. Readers have said to me, and correspondents have written that there is not room, in a depression at least, for more than one successful science fiction magazine. I don't believe this. If your magazine is not making a huge profit, and conditions seem rather bad, the answer may be the above statement. But in that case, why is it your magazine that suffers? I admit that after your change of magazines, I went on reading the old one—when I used to read it infrequently. I wasn't aware of it, and didn't realize how much difference it made. At that time, there was no doubt of the superiority of your magazine—up as far as I have read in it—even though I did not know it in 1930.

I have formulated a system of rating stories, with numbers from 1 to 10, based on their merit in the following qualities: style, science, and explanation of it, plausibility, originality, plot, suspense, literary merit and characterization, other circumstances developed and ingenuity of ideas, etc. When I have read all of the back numbers, I'll give you the results. But it is clear that the best period of any science fiction magazine (excluding your present magazine from that time until now) was that of SCIENCE WONDER from its first issue up to February, 1930. Partly from the number of good stories, and partly from the absence of poor ones. Such stories as "The Reign of the Ray," "The Human Termites," "The Eternal Man," "The Boneless Horror," "The Alien Intelligence," "The Super Velocitor," etc., rank with the best, and "The Ark of the Covenant" was better than even those. Each story had something worth while and distinctive. Now, your chief rival in this field, has improved considerably in the last year or so. I am not taking any sides. But I want to know what you are going to do to stay in the field, and in view of your past record, I don't see why you should give up first place to anybody, in this, your principal field.

I hope it is still your only real—as well as first—love. I believe that the field of science fiction is expanding, growing, developing—that it is gaining new converts—invading other fields—becoming an actual force in present day life. Surely it is entitled to more than one organ, more than one church in which to teach its doctrines, more than one forum in which to propound its questions and theories? I think there should be two magazines, competing more or less equally, each supporting itself; and I think you, as a man and an editor, as the most outstanding figure in the field, are entitled to be the leading editor. But I doubt if you are today. Equally however, do I doubt if there is any reason why you cannot be again."

Your rival magazine has usually been more conservative—it has not gone in so strongly for developing its converts as such—its correspondence department has been weaker on the edi-

(Continued on page 990)

SANE SEX LIFE

By Dr. H. W. LONG

A fresh and straightforward discussion of the most intimate details of marriage with complete explanation of the art and practice of love.

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This Once Forbidden Knowledge is Now Available to the General Public—COMPLETE AND UNEXPURGATED.

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Description of male sex organs, and their appearance—description of female sex organs and their appearance.

Purpose of sex organs—man's part and woman's part—difference between animals and human beings in use of sex organs—sex rights of husbands—a sin in marriage—husband's and wife's attitude—wrongful [illegible] to be—chastity vs. passion—love, the teacher—the right way to happiness.

The four periods of the sex act—dangers of haste—dangers of let down to husband and wife—being lovers after marriage—positions—the climax—false ideas of pregnancy—benefits of sex act—perfect accomplishment an art.

How to go about the first meeting—delay beneficial to virgin brides—having children when wanted—the wife's rights in the matter—discovery of "Free Time" and its importance.

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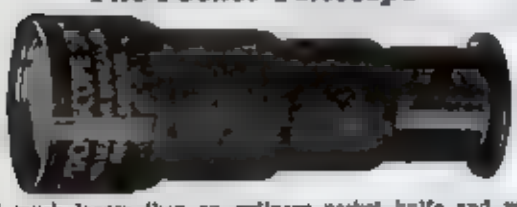

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THE READER SPEAKS

(Continued from page 989)

torial side, although it shows signs of overcoming these faults. But it has not been built around a personality as yours has, and has by no means the potentialities for circulation building that that means.

I wish you would give, if possible, the reasons, as you yourself see it, why yours is not larger, why your magazine has slipped a little, if you can admit it editorially, and what you are, and are going, to do about it. I'd like to see this letter published—perhaps your readers need a little stirring up, to encourage their loyalty.

Surely they agree with me in days like these, when the foundation for many new forces and ideas are being laid, when such science fiction-born ideas as Technocracy are being discussed everywhere, when anything is apt to happen, that there should be two living, competing, growing fountains of science fiction, to keep it active, new and awake. I'd like to see your magazine as it used to be—with articles and editorials always stimulating, keeping us up with the times in a non-fiction way too; I'd like to see new ideas in the make-up and policy of the magazine, as well as in the stories.

John A. Leiter,
Attorney-at-Law,
Portland, Ore.

(As Mr. Leiter will admit the field of science fiction has been in a chaotic state, just as other fields of publishing, and non-publishing. Magazines of science fiction have been born, lived for a short time and died. But while they live they introduce new factors into the field; authors turn toward them for awhile. Many authors naturally eager to obtain a new audience expand their writing (to the detriment of quality). When the magazines collapse, authors are left with a number of stories on their hands that they must sell before they can tackle new work. Sometimes these stories are of inferior quality to their normal work.

These are some of the facts of the background of science fiction that you should know. Frankly, we have never attempted to compete with some of the other magazines in the rates paid to authors. We frankly faced the situation and realised that business conditions would permit a certain rate and no more. But we did tell our authors who have stuck by us loyally that we could give them the opportunity to write stories that they enjoyed doing. We have never asked for hack material, for stereotyped, machine-made plots and action. Our cry was continually for material "fresh and original." The result was that many authors stated that they would rather write for us at a lower rate than they could get with other magazines.

We admit that our material has been better at some times and worse at others. But we have been able to rally around WONDER STORIES a number of fresh and original minds in science fiction who take a delight in their work. With an understanding with these men as to what we want, and what they want to write, we are ready to go on, giving our readers fresh and original stories. We have never admitted and do not admit any "slipping" of WONDER STORIES. If we felt we were slipping we would either stop it or resign our jobs to more capable people. Science fiction must always be kept alive and vital, else it means nothing. We will continue to do that, or turn over that job to some one else. So help us, Hannah.—*Editor.*)

Passing the Asteroid Belt

Editor, WONDER STORIES

I expect this letter, my first to you, will show how small my scientific knowledge is, anyway here goes. For two or three years I have been interested in reading your scientific-stories. My only regret is, that I rarely come in contact with people with the same interest, verbally or by letter. I've just finished reading your new issue of November. Well, one definite advantage is that the new cover stays on longer.

Re contents—"Venus Germ"—very good (I've a feeling something like it is happening today!. "Lake of Life"—Not so bad. "Asteroid of Gold"—Good. "Death of Iron"—Good. "The Reader Speaks" and The Questionnaire must never be omitted, not forgetting your interesting editorials.

NEW MORALS *for* OLD

Now comes a daring new book about sex, different from any other you may have ever read before. It is a book written especially for men and women who are not afraid to face the facts, and who want to learn the real truth about sex and sexual intimacies.

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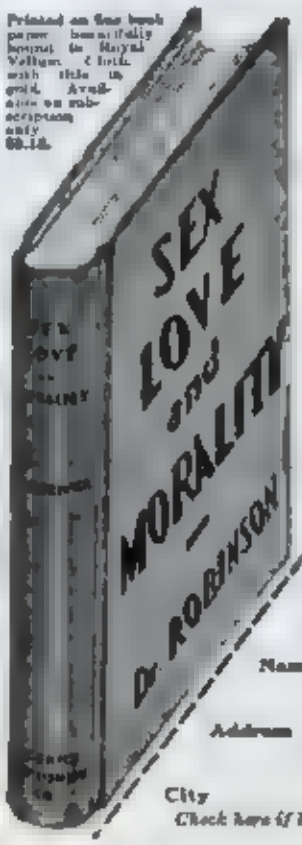

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My poor intelligence failed to grasp your explanation of the fourth dimension, although I did get a shade nearer. In stories relating to the asteroid belt, why can't the space ship go under or over, or travelling alongside at the same speed, safely pass through this belt of meteors? How is it that starlight when reaching us is only a pin-point instead of being its original size? Your answer to the "New Markets on New Worlds" letter was very good; it is evident that the writer knows more of conditions in other worlds than in his own.

James Plevin, Junior,
Pendlebury, Manchester, England.

(We think personally that the dangers in passing through the asteroid belt have been somewhat exaggerated. We popularly think of the asteroid belt as a rockstrewn sea with dangers lurking every few hundred feet. As a matter of fact the asteroid belt, if its average distance from the sun is some 300,000,000 miles, one would perhaps meet a full-sized asteroid every million miles. Even in a rocket ship travelling twenty miles a second, one would have some 15 hours to avoid a collision. Naturally, however, there are thousands of smaller asteroids, too small to be observed by our best telescopes. But even if there were thousands more than we know of, the asteroid belt would still not be anything like the hail of flying boulders that some have imagined. The space occupied by the belt is so vast that it is difficult to picture properly.—*Editor.*)

SCIENCE QUESTIONS AND ANSWERS

(Continued from page 986)

In the neutron they are closely bound together and carry no electric charge (whence the name neutron). The neutron may be called a hydrogen atom in the embryonic stage, for were it possible to draw its particles far apart, it would become a hydrogen atom.

Now, the density of matter is its mass per volume. Evidently, any material such as neutronium would be exceedingly dense, for as we observed, instead of having the relatively tremendous space separating protons and electrons, as in ordinary matter, we have the protons and electrons close together. In a cubic inch, therefore, there are millions of times as many particles of matter, as in ordinary substances.

Now we get into a confusion by speaking of "weight" in reference to different planets. Weight is a factor of the gravitational force of the planet. We should rather speak of the mass of neutronium. A cubic inch of neutronium on earth would have the same mass as a cubic inch on the companion of Sirius (which is supposed to be almost exclusively neutrons, and hence exceedingly massive). So, for example, if on earth a cubic foot of water weighs 62.5 pounds, and if neutronium is a million times as massive (the number of electrons and protons, remember) as water, then a cubic foot of neutronium on earth would weigh 62,500,000 pounds.

We have no exact figures on the mass of a unit volume of neutronium, but we do know that it is so massive that the earth's crust could probably not support much of it. It has been estimated that a cubic inch of matter at the surface of the companion of Sirius would weigh 64,720,000 pounds, due to the tremendous gravitation force of the heavy world.—Editor.)

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Advertisements in this section are inserted at the cost of ten cents per word for each insertion—name, initial and address each count as one word. Cash should accompany all classified advertisements unless placed by a recognized advertising agency. No less than ten words are accepted. Advertising for June, 1933, issue, should be received not later than April 7th.

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BOOK REVIEWS

THROUGH WONDERLANDS OF THE UNIVERSE by R. K. Golikere, 400 pages, stiff cloth covers. Size 5¼x8½. Published by D. B. Taraporevala Sons & Co., Bombay, India. Price 6 shillings 4 pence.

In the words of the author, who sends us this book from far-off Bombay, "the chief aim of this book is to convey concisely and as simply as possible an idea of the principal features of the various divisions of the material universe and of the more striking phenomena occurring in them. It is not a learned treatise, but a simple elementary study, a modest attempt to awaken a taste for Science among those who ordinarily take little interest in it. The book is therefore primarily intended for laymen who cannot be expected to wade through a large mass of technical literature in hope of scientific information of a general character."

The author fulfils his aspiration splendidly. He covers the earth and its interior, the ocean, volcanoes, the earth's atmosphere, the outer atmosphere, the planets, moon and sun, "the dreams of rocket science," the physical conditions on other worlds, the stars, the outer universe.

Throughout all of the scientific story, there runs in a charming manner the Indian philosophy and point of view. The author ends, therefore, with a chapter on Hindu cosmogony and cosmography. It is a book well worth the reading.

100,000,000 GUINEA PIGS by Arthur Kallet and F. J. Schlink, 312 pages, stiff cloth covers. Size 5¼x8. Published by Vanguard Press, New York. Price $2.00.

"A little bug is going to get you some day," might be called the theme song of this lively and hard-hitting book of attack on the patent drug and un-pure food racket. Based on a study of extensive literature from the government's own files, from trade advertising, chemists' tests, etc., etc., the authors have levelled some pretty severe indictments on manufacturers of drugs, toothpastes, beauty creams, foods, laxatives, and even fruit growers. Charges of murder might be read into these indictments of manufacturers who dope their products with harmful and killing ingredients; and who are yet outside the majesty of the law.

The authors do not hesitate to name the names of some of our large and "respectable" firms as defendants in the case.

What should be remarkable to American readers is that many products that are within the law in America are banned from England, France and Germany as being injurious to health. Apparently we still have much to learn from these "backward" nations in the control of irresponsible entrepreneurs.

THE EXPANDING UNIVERSE by Sir Arthur Eddington, 180 pages, stiff cloth covers, illustrated. Size 5x8. Published by Macmillan Company, New York. Price $2.00.

Sir Arthur brings forward here the evidence for and against the theory of an expanding universe. This term which has come into popularity lately presupposes that the great island universes of stars are rushing away from each other at great speeds, thus increasing the size of the universe. The evidence for the "expansion" Sir Arthur admits is not complete, or airtight, yet he prefers to accept it as a workable hypothesis. For example he admits that the observed displacement to the red of spectral lines of the receding nebula might prove other things than that the nebula are rushing away from us at speeds from 1,000 to 15,000 miles a second. But he confesses that he likes the idea of an expanding universe, and he proceeds to dwell upon the idea that perhaps our whole universe is just a puff of smoke being blown from the pipe of a GREAT PIPE SMOKER. The book however is simply written and is one that the imaginative mind can dwell upon with profit.

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LIST OF PLATES

Plate I. Nude Adult Female
" II. Nude Adult Male
" III. Nervous System of Female
" IV. Skeletal System
" V. Muscular System (Posterior)
" VI. Muscular System (Anterior)
" VII. Vascular System
" VIII Respiratory System
" IX. Digestive System
" X. Male Genital Organ in Detail
" XI. Female Genital Organ in Detail
" XII. Cross-Section of Pregnant Female Body with Child.

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Opposite each page, an explanatory text is provided, and this is in turn illustrated with photographs and drawings to show in detail the different organs and other features of the human body. The book is especially recommended for the use of nurses, art students, by lawyers for use in litigations, lecturers, physical culturists, hospitals, sanitariums, schools, colleges, gymnasiums, life insurance companies, employee's health departments, etc.

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SPECIAL Radio Equipment for Broad Practical Experience *Given Without Extra Charge*

My Course is not all theory. I'll show you how to use my special Radio equipment for conducting experiments and building circuits which illustrate important principles used in such well-known sets as Westinghouse, General Electric, Philco, R. C. A., Victor, Majestic, and others. You work out with your own hands many of the things you read in our lesson books. This 50-50 method of training makes learning at home easy, interesting, fascinating, intensely practical.

THIS COUPON IS GOOD for One FREE COPY OF MY BOOK — *mail it Now*

J. E. SMITH, President
National Radio Institute, Dept. 3EZ3
Washington, D. C.

Dear Mr. Smith: Without obligating me, send free book about spare-time and full-time Radio opportunities and how I can train for them at home.

Name ..... *Age*.....

Address .....

City ..... *State*.....

A NEW LIFETIME BUSINESS

OPENED TO EARNEST MEN

NO HIGH PRESSURE SELLING
NO HOUSE-TO-HOUSE CANVASSING
INCOME EQUAL TO REQUIREMENTS OF THE HIGH-GRADE BUSINESS MAN

E. Lawson, of Tennessee, clears **$108 profit his first 3 days** in this business. He tops off these earnings with **$113 profit on a single deal** a few days later. J. C. May, Connecticut, cleared **$262.35 the first 9 days he worked.** J. E. Loomis, Oregon, earns **$245 his first 9 days.** A. W. Farnsworth, Utah, nets **$64.16 his first day,** a Saturday. S. Clair, New York, writes he is clearing as high as **$70 a day.** W. F. Main, Iowa, cleans up **$291.50 in 9 days.** B. Y. Becton, Kansas, starts out with **$530.53 net for 40 days' work!** These men are beginners. How could they enter a field totally new to them and earn such remarkable sums in these desperate times? *Read the answer in this announcement.* Read about a new business that does away with the need for high pressure selling. A rich field that is creating new money-making frontiers for wide-awake men. *Those who enter now will pioneer — to them will go the choicest opportunities.*

FOUR $15 SALES DAILY PAY $280 WEEKLY

INSTALLING NEW BUSINESS SPECIALTY ON FREE TRIAL—MAKING TREMENDOUS CASH SAVINGS IN OPERATING COSTS FOR THOUSANDS OF CONCERNS THROUGHOUT THE U. S. and CANADA

$4,707 SAVINGS FOR ONE KANSAS STORE IN TWO MONTHS

Sanders Ridgeway of Kansas invests **$88.60 and saves $4,707.80** between April 5th and June 29th! Bowser Lumber and Feed Co., West Virginia, **invests $15,** report savings well over **$1,000.00!** Fox Ice and Coal Co., Wisconsin, **save $3,564.60!** Baltimore Sporting Goods Store **invests $45, saves $1,600.60!** Safety Auto Lock Corporation, New York, **invests $15, saves $686.45!**

With these and scores of similar results to display, our representatives interest every business man, from the very smallest to the very largest. No one can dispute the proof in the photo-copies of actual letters which our men show.

NO HIGH PRESSURE —SIMPLY INSTALL— SELLS ITSELF

Here is a business offering an invention so successful that we make it sell itself. Our representatives are now instructed not to attempt any selling whatsoever! They simply tell what they offer, show proof of success in every line of business and every section of the country. **Then install the specialty without a dollar down.** It starts working at once, producing a cash saving that can be counted just like the cash register money. **The customer sees with his own eyes a big, immediate profit on his proposed investment.** Usually he has the investment, and his profit besides, before the representative returns. The representative calls back, collects his money. OUT OF EVERY $75 BUSINESS THE REPRESENTATIVE DOES, NEARLY $60 IS HIS OWN PROFIT! THE SMALLEST HE MAKES IS $5 ON A $7.50 INSTALLATION! And the deal has been made without toil and trouble, without high pressure, without drudgery, without argument! **Nothing is so convincing as our offer to let results speak for themselves!** While others fail to even get a hearing, our men are making sales running into the hundreds. They are getting the attention of the largest concerns in the country, and selling to the smaller businesses by the thousands. **Business is GOOD, in this line, in small towns or big city alike! It's on the boom now. Get in while the business is young!**

START ON SMALL SCALE

You can start small and grow big. This is the field that the young man should enter and grow with. The mature man has the seasoning of experience which is worth thousands in this business. **You can get exclusive rights.** With profits from your first business you can open an office, hire salesmen, branch out into open territory where available, after you get going. Exclusive contract enables you to build an established permanent business which can be sold like any other business. Give your customers satisfactory service and they will be your prospects for repeat orders as long as they are in business. **You can pay your salesmen double what they make in ordinary lines, and yet have a big margin left for yourself.**

COMPLETE TRAINING FURNISHED

Every man with us today started at scratch, without previous experience, many coming out of clerking jobs, many out of small businesses, some out of large concerns. We teach you every angle of the business. We hand you the biggest money-making business of its kind in the country. You try out this business, ABSOLUTELY WITHOUT RISKING A RED COPPER CENT OF YOUR OWN. Can't possibly tell you all in the limited space available here. Mail the coupon now for full information — **nothing to risk, everything to gain.**

A BRILLIANT RECORD OF SUCCESS

America's foremost concerns are among our customers: Timken Silent Automatic Co., Central States Petroleum Corp., Acme Iron and Steel, Great American Life Underwriters, Houghton-Mifflin Co., National Paper Co., International Coal, Street Railways Advertising Co., General Brake Service, National Radio, and scores of others nationally known. Thousands of small businesses everywhere, professional businesses, such as universities, newspapers, hospitals, infirmaries, doctors, etc., buy large installations and heavy repeat orders.

CUSTOMER GUARANTEED PROFIT

Customer gets signed certificate guaranteeing cash profit on his investment. Very few business men are so foolish as to turn down a proposition guaranteed to pay a profit, with proof from leading concerns that it **does pay. Protected by surety bonded national organization.**

PORTFOLIO OF REFERENCES FROM AMERICA'S LEADING CONCERNS

is furnished you. A handsome, impressive portfolio **that** represents **every** leading type of business and profession. **You show immediate, positive proof of success.** Immediately forestalls the argument, "Doesn't fit my business." Shows that it does fit, and does make good. **Closes the deal.**

RUSH THE COUPON FOR FULL INFORMATION

TERRITORY FILLED IN ORDER OF APPLICATION

If you are looking for a man-size business, free from worries of other overcrowded lines of work, get in touch with us at once. Learn the possibilities now before the franchise for your territory is closed. This specialty is as important a business opportunity today as the typewriter, adding machine, and dictaphone were in their early days. Don't lose valuable time, and let this slip away from you. **Use the coupon for convenience. It will bring you full information and our proposition immediately.**

MAIL FOR FULL INFORMATION

F. E. ARMSTRONG, Pres., Dept. 4058-D, Mobile, Ala.

Without obligation to me, send me full information on your proposition.

Name.....

Street or Route .....

Box No.....

City .....

State .....

F. E. ARMSTRONG, President, Dept. 4058-D, MOBILE, ALA.